Council of the District of Columbia
COMMITTEE ON THE JUDICIARY & PUBLIC SAFETY
MEMORANDUM
1350 Pennsylvania Avenue, NW, Washington, DC 20004

TO:	Nyasha Smith, Secretary of the Council
FROM:	Charles Allen, Chairperson, Committee on the Judiciary and Public Safety CA
RE:	Closing Hearing Record
DATE:	July 18, 2022

Dear Ms. Smith,

Please find attached copies of the Hearing Notice, Agenda and Witness List, and testimony for the Committee on the Judiciary and Public Safety's June 30, 2022, Public Hearing on B24-0838, the "Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022".

The following witnesses testified at the hearing or submitted written testimony to the Committee:

i. Public Witnesses

1. Peter Stout, President & CEO, Houston Forensic Science Center
2. Olinda Moyd, Co-Chair, Criminal Justice Committee, Council for Court Excellence
3. Nathaniel Erb, State Policy Advocate, Innocence Project
4. Pete Marone, Public Witness
5. Sam Harahan, Public Witness
6. Steve Gordon, Public Witness
7. Tiffany Roy, Volunteer, D.C. Justice Lab
8. David Perry, Public Witness
9. Amanda Sozer, Chief Science Officer, SNA International
10. Virginia Spatz, Public Witness

ii. Government Witnesses

1. Chris Geldart, Deputy Mayor for Public Safety and Justice
2. Katya Semyonova, Special Counsel to the Director for Policy, Public Defender Service for the District of Columbia
3. Jose Marrero, Assistant Chief, Criminal Section, Public Safety Division, Office of the Attorney General for the District of Columbia
4. Elana Suttenberg, Special Counsel for Policy & Legislative Affairs, United States Attorney's Office for the District of Columbia
5. James Carroll, Member, USAO/OAG Audit Team

Council of the District of Columbia
COMMITTEE ON THE JUDICIARY & PUBLIC SAFETY
NOTICE OF PUBLIC HEARING
1350 Pennsylvania Avenue, N.W., Washington, D.C. 20004

COUNCILMEMBER CHARLES ALLEN, CHAIRPERSON
COMMITTEE ON THE JUDICIARY & PUBLIC SAFETY

ANNOUNCES A PUBLIC HEARING ON

B24-0838, the "Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022"

Thursday, June 30, 2022, 9:30 a.m. – 1:30 p.m.
Virtual Hearing via Zoom
To Watch Live:
https://www.facebook.com/CMcharlesallen/

On Thursday, June 30, 2022, Councilmember Charles Allen, Chairperson of the Committee on the Judiciary and Public Safety, will convene a public hearing to consider Bill 24-0838, the "Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022". The hearing will be conducted virtually via Zoom from 9:30 a.m. to no later than 1:30 p.m.

The stated purpose of B24-0838, the "Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022", is to amend the Department of Forensic Sciences Establishment Act of 2011 to redesignate the Department of Forensic Sciences as the Forensic Sciences and Public Health Laboratory, to redesignate the Laboratory as an independent agency within the executive branch of the District of Columbia government, to amend the qualifications and term of the Director, to expand the types of documents that are to be made publicly available, to amend the duties of the Director, to codify the budget process for the Laboratory, to establish the position of Chief Forensic Sciences Officer within the Laboratory, to address circumstances that unduly bias the provision of forensic sciences services and the independence of the Laboratory, to redesignate the Science Advisory Board as the Science Advisory and Review Board ("Board"), to provide for a robust and independent procedure for addressing self-disclosures, complaints, or allegations of testing errors before the Board, to require that correspondence and reports published by the Board be made public, to expand membership and change the qualifications for members on the Board, to grant access to the Board to all records of the Laboratory, and to amend existing law to conform to the redesignations of the Laboratory and the Board.

The Committee invites the public to provide oral and written testimony. Public witnesses seeking to provide oral testimony at the Committee's hearing must thoroughly review the following instructions:

- Anyone wishing to provide oral testimony must email the Committee at judiciary@dccouncil.us with their name, telephone number, organizational affiliation, and title (if any), by the **close of business on Monday, June 27**.
- The Committee will approve witnesses' registrations based on the total time allotted for public testimony. The Committee will also determine the order of witnesses' testimony.
- Representatives of organizations will be allowed a maximum of five minutes for oral testimony, and individuals (and any subsequent representatives of the same organizations) will be allowed a maximum of three minutes. In order to accommodate additional public witnesses, the Committee may reduce witnesses' allotted time for testimony but will inform witnesses if it plans to do so.
- Witnesses are not permitted to yield their time to, or substitute their testimony for, the testimony of another individual or organization.
- If possible, witnesses should submit a copy of their testimony electronically in advance to judiciary@dccouncil.us.
- Witnesses who anticipate needing language interpretation are requested to inform the Committee as soon as possible, but no later than five business days before the hearing. The Committee will make every effort to fulfill timely requests; however, requests received fewer than five business days before the hearing may not be fulfilled.

For witnesses who are unable to testify at the hearing, written statements will be made part of the official record. Copies of written statements should be submitted to the Committee at judiciary@dccouncil.us. **The record will close at the end of the business day on Thursday, July 14.**

Council of the District of Columbia
COMMITTEE ON THE JUDICIARY & PUBLIC SAFETY
AGENDA & WITNESS LIST
1350 Pennsylvania Avenue, N.W., Washington, D.C. 20004

COUNCILMEMBER CHARLES ALLEN, CHAIRPERSON
COMMITTEE ON THE JUDICIARY & PUBLIC SAFETY

ANNOUNCES A PUBLIC HEARING ON

B24-0838, the "Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022"

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AGENDA AND WITNESS LIST

I. CALL TO ORDER

II. OPENING REMARKS

III. WITNESS TESTIMONY

i. Public Witnesses

1. Peter Stout, President & CEO, Houston Forensic Science Center
2. Olinda Moyd, Co-Chair, Criminal Justice Committee, Council for Court Excellence
3. Nathaniel Erb, State Policy Advocate, Innocence Project
4. Pete Marone, Public Witness
5. Sam Harahan, Public Witness
6. Steve Gordon, Public Witness
7. Tiffany Roy, Volunteer, D.C. Justice Lab

ii. Government Witnesses

Panel 1

1. Chris Geldart, Deputy Mayor for Public Safety and Justice

Panel 2

2. Katya Semyonova, Special Counsel to the Director for Policy, Public Defender Service for the District of Columbia
3. Jessica Willis, Special Counsel for Forensic Science, Public Defender Service for the District of Columbia
4. Kate Philpott, Forensic Consultant, Public Defender Service for the District of Columbia

Panel 3

5. Jose Marrero, Assistant Chief, Criminal Section, Public Safety Division, Office of the Attorney General for the District of Columbia
6. Elana Suttenberg, Special Counsel for Policy & Legislative Affairs, United States Attorney's Office for the District of Columbia
7. James Carroll, Member, USAO/OAG Audit Team
8. Bruce Budowle, Member, USAO/OAG Audit Team
9. Todd Weller, Member, USAO/OAG Audit Team

IV. ADJOURNMENT

June 30, 2022

Council of the District of Columbia
Committee on the Judiciary & Public Safety
Councilmember Charles Allen, Chair

HOUSTON FORENSIC
SCIENCE CENTER
500 Jefferson Street, 13th Floor
Houston, Texas 77002
(713) 929-6760

Comments for Public Hearing on B24-0838, the "Restoring Trust and Credibility to Forensic Sciences Act of 2022"

Good [morning].

My name is Peter Stout. I am the head nerd of the Houston Forensic Science Center, which is the crime laboratory that serves Houston. We are often framed in the same narrative with the DC lab as experiments in forensic laboratory independence. HFSC took over responsibility for forensic science operations in April of 2014 from the notoriously troubled HPD crime laboratory. I can offer some perspective of the arduous, painful and achingly long path it is to attempt to remediate a "failed" forensic laboratory.

Rather than discuss the structure and history of HFSC, if you will indulge me a cautionary wish list I would pose to help your laboratory on its path. I will then offer some of the framework I think has been essential for HFSC and lastly I have a couple suggestions for the language of the bill.

I am happy to answer any questions during or after. Anyone with any experience with me knows, I rant and I can waste the rest of your day if you let me. I am at your disposal to provide you any information that may be helpful to you. I do not have any financial relationship with the DC lab or the City of DC. HFSC does not do any case work for DC or have any relation with the City of DC. I have spoken with numerous stakeholders of the criminal justice system in DC.

To me, my interest is to see forensic laboratories anywhere excel and succeed. I am a survivor of too many violent tragedies and had family murdered. I am a survivor of sexual violence. My family was at least complicit in a wrongful conviction. In short, my life has forever been altered by failings in forensic science. To me forensic science is a cornerstone of how those touched by the criminal justice system can find justice.

My wish list for decision makers thinking about forensic labs.

- Understand that the arc of remediating a laboratory is measured in years and decades. Laboratories are a repository of legacy results in the justice system and it is routine and will *always* be a part of a lab to be revisiting years old cases. Like a supernova of a distant star, it often takes years for destruction from a laboratory issue to be visible. It is easy to view these issues as reflecting current practice when in fact the issue represents the state years ago. But this makes rebuilding trust that much more difficult.
- Understand in forensics, no news is bad news. The indicator of a healthy laboratory is that there are routinely disclosures, and failed controls. Long stretches of silence are a sign of something

unhealthy. If no system control fails, you are not controlling the system tightly enough. You wish to avoid mass disclosure events, but a steady pace of disclosures that affect small numbers of cases is what a healthy lab looks like.

- Lastly, understand forensics for all the attention and publicity it gets is a vanishingly small industry. There are roughly 400 publicly funded crime labs in the country. Most have less than 30 people. The only disciplines that can be outsourced are DNA and toxicology and even there only a small portion of the work product can be outsourced. I say that because every laboratory in the nation struggles to find experienced qualified people. It takes years for an analyst to become proficient and productive in a specific lab and jurisdiction. These analysts take a very real personal risk with every report they sign out. Whenever one fails, their career is at risk to be destroyed and cases they worked for the past years are in jeaprody so much so, you may as well add them to the backlog. These people are necessarily expensive and there is no AI or robot that can substitute. For as long as any of us are doing this, labor will be 75-80% of any lab's budget and if you do not plan around the multi-year process of replacing personnel, you will never get out of the hole. Please adjust your understanding of what it costs to run a lab up by about an additional zero.

HFSC has not accomplished what it has by itself. We have not magically fixed issues. We still have plenty. As I have contemplated what the conditions in Texas are that have allowed HFSC to succeed these are the things I keep coming back to.

- Texas Forensic Science Commission. This was formed in 2005 so has been in place now approaching 20 years. TFSC has become an essential backstop to conversations about best practices and an even more essential forum that all players have come to trust as a public arbiter of issues. It has not always been this and has had its own growing pains. I would very much encourage the revised review board to spend as much time as it can learning from TFSC and how they interact with all the various stakeholders.
- Texas Code of Criminal Procedure 39.14 also known as the Michael Morton Act. Enacted in response to the wrongful conviction of Michael Morton the component of this law that expands Brady requirements and makes the obligation a proactive disclosure obligation, I find a key help to HFSC. While it may seem on its face to be an onerous requirement, my experience has been that it actually makes the life of the laboratory easier. This is coupled with a disciplinary decision in Texas called the Schultz decision in which a prosecutor was disciplined for not disclosing information properly. While I think most prosecutors take Brady obligations pretty seriously, what I have seen over the years in many places in the country is that disclosure is often treated as a tactical decision. This leaves the lab often sandwiched between various tactical interests in cases and vulnerable to then being perceived as biased to a particular view. When the laboratory is free to release information more completely and without questions of discovery orders, this makes the role of the laboratory much more clear and actually easier.
- Partnership with prosecution, law enforcement and defense as a PARTNER not subsidiary. I find myself discussing the concept of "independence" by trying to shift the frame to the concept of parity. We have had our challenges of the laboratory being framed as independent as being heard by stakeholders as "unaccountable". Clearly something that makes many uncomfortable. All the stakeholders in the system need to view the lab as an equal with its own unique role in the system and responsibilities. But this relationship cannot be that the lab just "does its own

thing". The lab is and should be accountable to ALL the stakeholders including media and citizens. HFSC only works because of the support of HPD and Harris County DA and the city of Houston and the defense community and TFSC. We are all interdependent and the whole system fails if any part fails. This relationship is so important that everyone needs to make the time to maintain the relationship.

Reading through the language of B24-0838, I think you are creating a framework of analogs of TFSC and Michael Morton Act. Please resist the very natural temptation to view passing this bill as solving everything. It will help in setting the framework for a healthy working relationship of the lab with other stakeholders, but that is an ongoing, constant maintenance effort. That maintenance is a permanent condition.

I am NOT a lawyer or legislator, I am not in a position to comment on all of the nuance of the legislation. Two areas present to me as places to consider revision:

- On p9 line 234 a new (b-2) "…the laboratory shall make efforts to ensure that extraneous. . ." This is a noble intention and one that I think we certainly strive for. WE still have plenty of places we have been unable to work this out to the degree we would like because of complexities of information on evidence packaging materials and the ongoing tendency of investigators to seek out analysts contact information and insist on contacting them directly. I can easily see this change as being concerning for stakeholders who may read this as license to be obstructionist. While I am certain this is not the intent or what will actually happen. It may help this bill to indicate here that it is explicitly in partnership with submitting agencies and users of laboratory results.
- On page 14 line 342 in the makeup of the Advisory and Review Board. As the laboratory does toxicology analysis, and DUI/DUID is usually one of the most litigated types of analysis nationwide, the Board should include a named position for a toxicologist. I would recommend keeping the 11 seat structure by replacing the human factor/statistical analysis seat with a toxicologist. I would then add under (i) "The laboratory shall provide funding…" a "(4) statistical and human factor consultation". My experience over the years has been that statistical expertise is essential but is not routinely needed. Providing for the expectation of statistical consultation is a good way to have this available when needed.

Thank you for your time. I hope the perspective of what we have seen in the 8 years of our adventure in Houston is helpful. I will offer as I have offered all the stakeholders I have talked with, HFSC is available and willing to help wherever, whenever and however we can. We are extraordinarily privileged as a laboratory and I view that then as an obligation to provide assistance anyplace we can.

I am happy to answer any questions.

Links to some potentially helpful articles about or involving HFSC:

Crime lab in Texas reinvents how evidence is gathered - CSMonitor.com cover story last spring about HFSC

Why a High-Ranking FBI Attorney Is Pushing ‘Unbelievable’ Junk Science on Guns (thedailybeast.com) HFSC quoted about research in firearms analysis

Blind testing in firearms: Preliminary results from a blind quality control program - Neuman - 2022 - Journal of Forensic Sciences - Wiley Online Library the data that Radley Balko cites.

13 Investigates: Houston cases impacted by DNA analyst's 'false testimony' grows to 2,100 - ABC13 Houston A very recent example of how a years old case that was not even an HFSC case can result in major consequences for the lab. Also, an example of how media now respond to HFSC compared to the old HPD lab.

News – Houston Forensics Science Center (houstonforensicscience.org) a comprehensive collection of media stories involving HFSC.

Council for Court Excellence
Improving Justice for the Community

Statement of the Council for Court Excellence
Before the Committee on the Judiciary & Public Safety
of the Council of the District of Columbia

Hearing on B24-0838, the Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022

Thursday, June 30, 2022

Good morning Chairman Allen and members of the Committee. My name is Olinda Moyd, and I am here in my capacity as the Co-Chair of the Court Excellence's (CCE) Criminal Justice Committee and member of the Board of Directors. CCE is a nonpartisan, nonprofit organization with the mission to enhance justice in the District of Columbia. For nearly 40 years, CCE has worked to improve the administration of justice in the courts and related agencies in D.C. through research and policy analysis, convening diverse stakeholders, and creating educational resources for the public. Please note that in accordance with our policy, no judicial member of CCE participated in the formulation or approval of this testimony. This testimony does not reflect the specific views of, or endorsement by, any judicial member of CCE.

Over a decade ago, CCE testified before the Committee on the Judiciary & Public Safety in support of the "Department of Forensic Sciences Act."[1] At the time, we enthusiastically supported the features of that bill, particularly those which prioritized independence for the Department. Since then, we have learned that the framework of the original act was, unfortunately, not sufficient to

[1] Council for Court Excellence. *Testimony before the Committee on the Judiciary Council: Department of Forensic Sciences Act of 2011*. February 2011. http://www.courtexcellence.org/uploads/publications/Forensic_Sciences_Act_of_2011FINAL.pdf

1111 14th Street, NW, Suite 500 | Washington, DC 20005-5628
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www.courtexcellence.org

prevent significant problems. The "Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022," currently before this committee, contemplates structural and procedural changes to the Department of Forensic Sciences and Public Health Laboratory ("Lab"), with the goal of solving those problems. We are here today to: (1) advocate for increased scientific rigor in the Lab's operations and in the credentials of its leadership, (2) provide input on the construction of the Science and Advisory Review Board (SARB), and (3) testify in support of changing and increasing the Lab's independence.

In January 2020, the United States Attorney's Office for the District of Columbia (USAO-DC) discovered ballistic analysis mistakes made by Lab examiners that incorrectly connected two homicides.[2] Consequently, USAO-DC and the Office of the Attorney General for the District of Columbia (OAG) conducted an audit of 60 D.C. Superior Court cases. Preliminary findings revealed discrepancies in the forensic evidence for 12 of those cases. In April 2021, the American National Standards Institute (ANSI) National Accreditation Board (ANAB) suspended the Lab's forensic testing accreditation.[3] In May 2021, accreditation of all five forensic disciplines was withdrawn (Firearms Examination Unit, Forensic Biology Unit, Forensic Chemistry Unit, Latent Fingerprint Unit, and the Digital Evidence Unit). Then, in May 2021, the D.C. Office of Contracting and Procurement hired SNA International (SNA) to review forensic operations at the Lab.

SNA conducted an independent review of the ballistic analyses that triggered the USAO-DC and OAG audit and confirmed those findings in its December 2021Assessment Report. Regarding the false linkage, the SNA report stated, "[t]he incorrect conclusion . . . rendered by

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[2] Council for Court Excellence. *D.C.'s Justice Systems Overview 2020*. May 2021. http://www.courtexcellence.org/uploads/publications/DCs_Justice_Systems_Overview_2020.pdf

[3] SNA International. *DC Department of Forensic Sciences Laboratory Assessment Report*. December 2021. https://dfs.dc.gov/sites/default/files/dc/sites/dfs/publication/attachments/DFS Forensic Laboratory Assessment Report.pdf

some DFS examiners is so disparate from the correct conclusion . . . that it represents a significant issue relating to the competence of those examiners."[4] Through review of administrative documents and case files, observation of laboratory staff performing daily tasks, and interviews with relevant individuals, SNA identified several root causes of the withdrawal of accreditation, including a lack of oversight and accountability for the forensic operations, issues with conflict resolution, and structural organization problems that did not promote a collaborative work environment.

In light of SNA's findings, as well as the feedback from community stakeholders who are focused on accuracy in criminal prosecutions, CCE supports the goals and many provisions of the legislation before the committee today. First, there is an urgent need for increased scientific rigor at the Lab, particularly among its leadership. While CCE is not making specific recommendations on the qualifications and expertise Lab leadership should possess, we do want to see a deep understanding of, and respect for, scientific rigor at the core of how Lab leaders apply laboratory standards, conduct its forensic work, manage quality control, and supervise technical personnel. We encourage the committee to work with those community partners and national experts who have significant knowledge in this area.

Nevertheless, we do know that any lack of scientific rigor has a direct and significant negative impact on the lives and liberty of D.C. residents, including victims and survivors of crime, those accused of crimes, and their family and neighborhoods. Without prioritizing the most stringent scientific standards, the likelihood that accurate prosecutions are held in doubt or that a guilty person avoids responsibility increases. It also can contribute to wrongful convictions

[4] SNA International. *DC Department of Forensic Sciences Laboratory Assessment Report*. December 2021. Pg. 5. https://dfs.dc.gov/sites/default/files/dc/sites/dfs/publication/attachments/DFS Forensic Laboratory Assessment Report.pdf

when the best science is not applied at all levels. This not only harms the District community, but also creates a glaring administration of justice issue.

Second, the strengthening and restructuring of the Science Advisory and Review Board is an important step towards meeting appropriate scientific standards and reaccreditation. CCE has two recommendations regarding the SARB, both of which deal with member specifications. First, the Council has designated that one of the Board's members must have an "expertise in human factors or statistical analysis."[5] This position should be split into two, requiring both a human factors expert and a statistical analysis expert, as human factors and statistical analysis are significantly different fields and should not be conflated.

CCE would also like to emphasize the value of a consistent defense perspective on the SARB if there is to be an attorney role as contemplated in the bill. Due to the very nature and purpose of forensic science practice, a high percentage of SARB members will have law enforcement backgrounds. In light of its purpose, a forensic lab will inevitably be oriented towards those entities it supports directly – here, the USAO-DC, OAG, and law enforcement. Indeed, the SNA report referred to these stakeholders as the Lab's "customers."[6] Including at least one member with experience in criminal defense on the SARB is one important way to ensure the unique perspective and expertise defense counsel brings to evidence analysis and processing, as well as data and records collection, is heard and valued. If our goal is to ensure that evidence that is introduced at a trial is accurate and reliable, we all should want experts on the science and both sides of our adversarial system to have a stake in making sure the Lab is applying the highest standards. We believe that when developing this legislation, the

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[5] Council of the District of Columbia. *Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022*. June 2022. Pg. 13-14. https://lims.dccouncil.us/downloads/LIMS/49655/Introduction/B24-0838-Introduction.pdf

[6] SNA International. *DC Department of Forensic Sciences Laboratory Assessment Report*. December 2021. Pg. 17. https://dfs.dc.gov/sites/default/files/dc/sites/dfs/publication/attachments/DFS Forensic Laboratory Assessment Report.pdf

"customers" of the Lab should be broadly conceptualized as all of those who benefit from it running efficiently and accurately; that does not just mean law enforcement, but it includes victims and survivors of crime, those accused of crimes, their advocates, and the communities in which harm was committed.

Finally, CCE supports increasing the independence of the Lab as proposed in this legislation. This bill takes several steps towards achieving this goal. These steps include: (1) making the Lab an independent rather than a subordinate agency, (2) empowering SARB to determine how to proceed with a complaint, and (3) establishing a publicly-accessible database for quality-assurance documents. You will hear this approach supported by several other witnesses today, including the Innocence Project and CCE's former and founding Executive Director who has worked on this issue for many years.

We would like to offer the example of the Houston Forensic Science Center (HFSC), which demonstrates the importance of independence.[7] The HFSC is fully independent from law enforcement, in direct contrast to the old Houston lab, which operated under the Houston Police Department. A scientist who serves as President and Chief Executive Officer (CEO) heads HFSC. This President and CEO reports to a nine-member Board of Directors who report directly to local government. The high level of independence provided by this structure allows the HFSC to prioritize quality control over providing results to law enforcement. Analysts working for the HFSC understand that mistakes happen, and have latitude to fix those mistakes as well as conduct research that improves the reliability of their forensic procedures. CCE believes that prioritizing the independence of the Lab will produce similar results in D.C.

[7] Gass, H. *CSI Houston: How a Texas Lab has Remade the Science of Forensics*. April 2021. https://www.csmonitor.com/USA/Justice/2021/0423/CSI-Houston-How-a-Texas-lab-has-remade-the-science-of-forensics

CCE's mission is to enhance the justice system in the District of Columbia to serve the public equitably. An independent Lab that centers scientific rigor and standards, while understanding its work is accountable to and affects the entire community, is a crucial part of fulfilling our mission. Consistently accurate forensic analysis is an essential part of achieving equitable administration of justice, and all D.C. residents deserve a Lab that subscribes to the highest level of scientific accuracy. This concludes my testimony. Thank you for your time and I look forward to answering any questions you may have.

INNOCENCE PROJECT

Testimony of the Innocence Project Supporting the "Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022"

Committee on the Judiciary & Public Safety
Council of the District of Columbia
June 30, 2022

The Innocence Project represents wrongfully convicted persons and works to reform the criminal legal system to prevent future injustices. When forensic evidence is reliable, it can free people who have been wrongfully convicted and prevent innocent people from being falsely implicated in the first place. However, the misapplication of forensic science has also been found to be the second leading contributing factor to wrongful convictions, having played a role in the cases of almost half of the 375 wrongfully convicted people in the United States who have been exonerated by DNA testing and nearly a quarter of all wrongful convictions. According to the National Registry of Exonerations, 8 wrongful convictions in the District already have involved false or misleading forensic science.

The Innocence Project has been committed to supporting the advancement of scientifically rigorous, transparent, and independent forensic evidence across the country. In an adversarial system, we need valid and reliable forensic evidence to serve as a neutral tool that brings us closer to the truth. We believe in the original vision of DFS and the ability of the District of Columbia to achieve it. Because of this, the Innocence Projects support the passage of the Restoring Trust and Credibility to the Forensic Sciences Amendment Act. We believe the Act takes substantial and impactful steps to address the key concerns and recommendations we made in our October 2021 testimony before the Council by improving structural and operational independence, strengthening the Scientific Advisory Board, and increasing transparency in operations. The Innocence Project is grateful for the work of Chairman Allen and his office in developing this Act and we respectfully submit our support for it. Below, we have detailed some recommendations we believe will further strengthen the Act.

Recommended Additions:

1. **Qualifications of the Director**
   The Innocence Project supports the creation of separate Director and Chief Forensic Science Officer roles. At present, the drafted legislation has structured the Director's role in such a way that it may preclude proven leaders from public health or other non-governmental/forensic science backgrounds from being considered. We recommend broadening the qualifications to allow for more diverse scientific backgrounds to be considered in leadership even if the existing qualifications are prioritized. We support installing leadership with the existing qualifications and make this recommendation only to create openness in the future. Similar to the diverse areas of expertise on the SAB, allowing for diverse expertise in leadership may bring impactful outside perspectives.

INNOCENCE PROJECT

2. **Qualifications of the Chief Forensic Science Officer**
The Innocence Project recommends similarly broadening the requirements of the CFSO to open the door to other qualified experts. Instead of strictly requiring experience in a forensic science laboratory we have recommended a replacement of "scientific research, laboratory management, or a combination thereof".

3. **Composition of the SARB**
The Innocence Project is strongly supportive of the increased autonomy and support that the SARB will be given under the Act. As we testified and submitted at the previous Roundtable, we believe this will be a key tool in helping ensure quality and credibility. We recommend adjustments to the membership to account for a greater breadth of scientific and technical expertise as summarized here:

- At least five members with experience in scientific research and methodology who have published in peer-reviewed journals. As drafted, we believe this expertise is not necessarily accounted for and it would be a loss for the Board's ability to evaluate scientific rigor.

- A member with experience in accreditation should be replaced with a member with experience in root cause analysis – including experience managing quality systems in public health, forensic science, or a clinical testing setting. This expertise would encompass experience in accreditation but crucially go further in assuring the member has expertise necessary to assess systemic issues which are not addressed through accreditation.

- A member with criminal defense experience involving the litigation of forensic science. As drafted, the Board need only have a member with defense or prosecutorial experience. By nature of the forensic science field, it is most likely that many other members of the Board will come from law enforcement backgrounds and thus the presence of such perspectives is guaranteed. The Act should similarly guarantee at least one perspective from a defense background.

- A member with experience in human factors analysis and a member with experience in statistical analysis. These are divergent but equally valuable areas of expertise and both should be accounted for on the Board.

Additionally, we think it is important to create a requirement that the majority of voting members of the Board were not formerly employed by law enforcement, public safety agencies, or prosecutorial entities in the District. As discussed, by nature of the forensic science field, it would be highly plausible that the Board could be comprised of a majority of such persons and maintaining a balance through such a mechanism would help ensure independence and credibility.

4. **Roles of the Stakeholder Council**
   We would recommend further enumerating the roles and responsibilities of the Stakeholder Council to help ensure concerns by members are raised with the Board and Laboratory and resolved satisfactorily. This is in keeping with ISO 17025:2017: *"8.6.2 The laboratory shall seek feedback, both positive and negative, from its customers. The feedback shall be analyzed and used to improve the management system, laboratory activities and customer service".* Enumerated roles could include:

   - Requiring that the Board and the Council to meet at least biannually.
   - Giving the Council the responsibility of reviewing and commenting on reports and findings by the Board.
   - Empowering the Council with authority to issue a resolution recommending termination of the Director or CFSO to the Mayor as well as proposed good cause findings in the event either have failed to perform their role satisfactorily.

5. **Addition of a Wrongfully Convicted Person to the Stakeholder Council**
   The Innocence Project recommends the addition of an exoneree whose wrongful conviction involved the misapplication or misunderstanding of forensic science or a representative of an organization serving such persons in the District. As noted, nearly a quarter of all exonerated people in the U.S. have been wrongfully convicted in part because of this issue. We believe this would be an impactful voice on the Council.

A Note on Accreditation

While the loss of accreditation by DFS is a public and clear designation of significant issues, we believe it prudent herein again to caution against any presumption that reaccreditation alone will address underlying scientific and operational failures. We are supportive of the Act in part because it contains provisions meant to look beyond accreditation and we encourage the Committee to maintain this purpose.

As fundamental as reaccreditation is to the operation of DFS, it is not an absolute guarantee of quality, nor is it an affirmation that the underlying forensic practices have been validated.[1] Accreditation only assesses labs against their internal policies, protocols, and practices. Since there are no national standards for forensic science, it is possible that current lab policies, protocols, and practices are insufficient for ensuring quality testing. The Houston Forensic Science Center has been successful in overcoming similarly significant issues because it adopted quality management strategies that go beyond the requirements of accreditation and is overseen by an independent oversight entity. While DFS needs to regain its accreditation to function, accreditation cannot be the sole solution nor end goal.

[1] Sean Doyle, *Current Practice*, *in* Quality Management in Forensic Science 221–244 (2019), https://linkinghub.elsevier.com/retrieve/pii/B9780128054161000050 (last visited May 24, 2021); Rankin and Welsh, *supra* note 5.

Conclusion

At the Innocence Project, we wrestle with the divergent impacts of forensic science on the justice system. The stories of our clients show us daily the real and personal toll that failures take on families and communities. At the same time, it was the advent of forensic DNA testing that allowed our work to flourish and forensic scientists daily help prevent the false implication of innocent people. The examination and challenging of scientific practices is not contrary to the protection and the upholding of the institutions on which we rely. It is this open and transparent engagement with imperfections, mistakes, and how we need to grow this work that will lead to a fairer and more justice legal system. We submit our testimony here today in order to help strengthen and support the work of DFS so that one day, fewer people will need the help of organizations like ours.

We thank Chairman Allen for his work bringing forth this significant legislation and recommend its passage to help restore credibility and prevent wrongful convictions.

Respectfully submitted,

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Statement of Peter M. Marone

Chairman Allen, members of the Judiciary Committee, I am offering the following statement regarding Bill B24-0838, The Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022.

My name is Peter Marone, before retiring, I was the director of the Virginia Department of Forensic Science where I was employed from 1978 where I functioned in a number of different capacities until my retirement in 2013. Among the positions outside of the Department which I held during my career was as a member of the American Association of Crime Laboratory Directors Laboratory Accreditation Board (ASCLD/LAB) and served as Chair for a year. I also served as a member of both the Scientific Advisory Board (SAB) for the North Carolina State Crime Laboratory and the Scientific Advisory Board for the District of Columbia Department of Forensic Sciences.

I would like to commend you and the Council putting forward this proposed legislation addressing structural issues and necessary improvements in the District's Department of Forensic Sciences enabling legislation. I do want to address however, something that I feel we all need to understand. There was nothing in the original enacting legislation that caused or promoted the issues that have occurred over the past several years. Additionally, there are no changes to the legislation which will absolutely preclude these issues from occurring again. In fact, if the legislation is written too tightly, the requirements could make the operation of the laboratory difficult and overburdensome. I have seen regulations or requirements written with the best of intentions cause an agency to trip over its own wording. For example, in an effort to "encourage" more effective movement of laboratory reports through the technical and administrative review process, I required specific time periods be established for each step. However, in doing so, I had automatically caused non-conformance with lab protocols if/when that time frame was not met. This was self-reported and triggered a time-consuming process of paperwork shuffle (fortunately not critical) to correct.

The single most important action that must be taken is to select experienced, qualified leaders for the agency. What needs to be accomplished is a change of culture within the Agency and ALL it's members. This must be an effort where everyone participates and buys into the philosophy. Hiring of the leadership is of paramount importance and cannot be underestimated. The Director of the forensic science laboratory, the person who is making all the calls, approving the protocols, establishing the basis of all the training must have several years of experience directing an operational forensic science laboratory. In this particular instance, you cannot count on the individual growing into the job. I would suggest that the

minimum 5 years of experience be in directing (not supervising) an operational forensic laboratory (not a laboratory setting). To recruit that kind of individual, it cannot be a subordinate position, it needs to be the Boss, with sufficient salary to draw the type of experienced, dynamic, individual respected in the field who can successfully achieve the goal.

The qualifications, education, experience required for the forensic science laboratory and the public health laboratory are significantly different. I would recommend that the two laboratories function as two separate entities with directed legislation to meet each individual needs separated in different sections for more defined clarity, even if some wording needs to be repeated.

From personal experience in the past SAB meetings, while there was much discussion on forensic science issues, there was not much for the public health board members in which to participate and vice versa. I would suggest that there be two separate boards to each address their own issues.

I concur with the establishment of board members with specific designations as "managerial and technical expertise in DNA and biological material analysis, firearms and tool mark examination, etc., which will provide a technical expert for each of the disciplines in which the laboratory provides services. However, I would recommend that managerial requirement be removed. This designation will reduce the candidate pool. I would suggest that the positions be worded as forensic scientist with technical experience in DNA and biological material analysis in an operational forensic laboratory, etc. I can recall such a circumstance where legislation establishing the Virginia Department of Forensic Science Scientific Advisory Board. For example, wording for a firearms board member included "an officer on the Board of AFTE" (Association of Firearms and Toolmark Examiners). Sounds really good, but these positions change every year, which made it very difficult to maintain members.

The remaining members would be a forensic scientist with experience in assessing forensic laboratories for compliance accreditation (adding the quality manager title may be one of those requirements which could restrain flexibility in selection criteria); a scientist with experience with statistical analysis, and two forensic scientists with experience in directing an operational forensic science laboratory, for a total of nine members. You may also want to add wording to allow for expansion of the board if/when more disciplines are added without the need for legislative amendments. I would also propose that the board member with experience in criminal prosecution or defense is not included since that input is available through the Stakeholders Council or s part of the question-and-answer period of the meeting.

The legislation gives the Board much more authority to investigate allegations of negligence, misconduct, misidentification, or other testing errors and I support that goal. However, this process places the Board in the position of running the laboratory rather than overseeing the process. It is the duty of the director and staff to receive the complaints and allegations and work through the process. While it is fine to have the Board notified, it is much too cumbersome to have the Board performing the investigations and assessments. [Another aspect to consider is that few people would be willing to undertake a board position as proposed and/or their home agency would not be willing to get involved in another lab's problems. It is leaving them wide-open to being involved in litigation.]

With the ability to obtain the background documentation to verify, the agency staff should perform all the functions necessary and provide the Board with the work products at each step. The Board reviews, questions and approves. The time constraints are also unrealistic. We do not want to be wrapped around the axle with requirements which were included with the best of intentions.

I would also like to address the compensation for the Board members. While I understand the reasoning behind the concept, I must respectfully disagree, for the same reason that government entities require in their ethics policies that employees cannot accept any gifts, lunches tickets, etc. as part of their duties. There is always the chance that the issue of the Board arriving at a particular decision "because they were being paid to reach the right decision." Individuals participate in Boards because it is what you do for the community.

Lastly, the proposed legislation requires the laboratory automatically provide "records" to include: "Any logs related to equipment or materials used in testing." These materials are voluminous and will result in sets of documents truly expansive in content which will result in significant time spent providing this material on many cases for which the materials may not even be required. One way to maintain transparency would be to require the laboratory to make these documents available for review upon written request. Similarly, there is a requirement to provide all accreditation certificates, correspondence, and manuals. I believe that the accreditation manuals containing the accreditation criteria (if that is what are being referred to here) are copyrighted materials and not available for the laboratory to distribute.

Same section, "All of the documents listed in section 6a(c)(5) including all internal validation studies…" Again, these documents are voluminous and could be more efficiently handled by directing the "laboratory" to make them available for review upon written request.

Chairman Allen, members of the Judiciary Committee, I offer the following statement re Bill B24-0838, The Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022.

Mr. Chairman, my name is Sam Harahan. As some of you may know, in 1982 I helped to establish the Council for Court Excellence, and served as its' founding Executive Director for the next 20 years. Prior to that period I worked seven years in the Executive Office of Mayor Washington.

Today I am testifying on my own behalf.

I have a long voluntary civic community-based history with The DC Department of Forensic Sciences. More than 12 years ago The Honorable Phil Mendelson, then chair of the DC Council's Judiciary Committee, asked me to assist this Committee by drafting proposed enabling legislation to establish this new independent DC Department. I promptly recruited two colleagues and experienced DC civic leaders, David Perry, and Steven Gordon, to work with me on the bill. The final enabling legislation was ultimately enacted by unanimous vote by the DC Council.

I would like to state at the outset that my remarks today are limited to the forensic science dimensions of the proposed Bill, and in turn in most cases do not extend to the work of the public health lab which is a separate division within the District's Forensic Science Agency.

Chairman Allen I commend you and the DC Council for taking up this proposed legislation to address needed improvements and existing structural deficiencies in the District's existing DC Department of Forensic Sciences. The recent independent SNA Consulting Study Report on the District's Forensic Agency offers a host of findings and recommendations, a number which deserve consideration and support.

With an annual combined forensic science and public health labs agency budget of $32,000,000. we need to keep in mind that District taxpayers are spending two million dollars a month for forensic science lab and crime scene search activities. Mr. Chairman we mustn't lose sight of the fact that this small District Agency's activities are an essential, impartial contributor to the day-to-day street level public safety in our community, and to the fair, accurate, and timely administration of criminal justice in DC's local and federal trial courts.

By way of example, DC Forensic Science Agency employees process an average of 16 crime scenes a day, or 500 a month, or nearly 6,000 a year; in FY 2020 and again 2021 it's Forensic Biology Unit processed over 750 cases for the CODIS national base, and handled in a timely manner some 200 sexual assault cases; similarly the Firearms Examination Unit test fired over 2,100 firearms in 2020 and processed over 5,000 cartridge cases. In the first six months of 2021, before its' accreditation was withdrawn, that same Unit test fired 1,300 firearms.

While in my judgment there are quite a number of refinements needed in Bill 24-B24-0838 before it is ready for enactment, I'll limit my remarks today to three of the main proposed amendments, and one closing comment:

(1) the independent agency designation, and subsidiary matters therein;

(2) the character of agency leadership and it's essential linkage, in 2022 especially, to attracting and retaining highly qualified senior forensic science agency leadership; and

(3) strengthening the Science Advisory Board.

If asked I'd be happy to work, off line, with Judiciary Committee staff regarding other matters where the Bill might be improved.

Independent Agency Status. This element of the proposed Bill is especially vital. As you well know Mr. Chairman in the past decade, in response to well executed, though sometimes flawed, adverse analyses, publicity and pressure by outside forces, Mayor Bowser **twice** summarily removed the senior management teams at the DC Department of Forensic Science. The Mayor's swift action resulted in personnel and workload impact fallouts across the Department of Forensic Science, and by extension in the District's other criminal justice agencies—local and federal— all which ultimately impacted the timely disposition of criminal cases, and citizens public safety.

We need to always keep in mind that by its' very nature forensic science involves the exercise of trained human judgment. By definition we cannot and should not expect all parties in our adversarial justice system to agree or support every impartial judgment and conclusion reached by the trained and qualified forensic science professionals The District employs. The fact that there is such disagreement here and there should not cause an immediate wholesale housecleaning, despite however "decisive" such action may look in the heat of the moment.

One can only hope that with Independent Agency status when serious forensic science evidentiary interpretation disputes and concerns do surface—which they surely will—needed remedial steps and actions will be promptly investigated and addressed by Agency leadership, and where warranted by the Agency's independent Science Advisory Board as well.

A further compelling argument in favor of the independent agency designation at this time in 2022 concerns the District of Columbia's critical need to recruit and hire a senior level experienced forensic science agency leader, hopefully from another jurisdiction's forensic science lab.

No matter how you look at it the fact that the last two Agency directors were in effect canned will make recruiting the next DC forensic science leader exceedingly difficult.

The added employee “for cause “removal protections, and 6 year appointment provisions associated with independent agency leadership status will be important factors in attracting the right candidate. Over time with the DC Council and the Mayor’s combined support the new agency director can be successful in strengthening the current agency culture.

Agency Director Appointment, Qualifications, etc. The Bill as drafted provides that the Agency director position will be held by an experienced senior experienced public agency manager, but not someone with advanced forensic science education, and lengthy direct forensic agency laboratory management experience. The District’s Forensic Science Agency has long needed a strong experienced public agency manager to partner with the forensic science director and the public health lab director in fulfilling the Agency’s mission; I commend the addition of this leadership position to the Agency structure but respectfully disagree strongly that “ the face” of this important independent agency —it’s key forensic science policy leader and final arbiter on budgetary and other decisions— should be someone whose principal credentials are public agency managerial competency. Can you envision the NIH director, or the Centers for Disease Control to be headed by a non scientist?

If the District Government is earnest today—June 30, 2022— about attracting an experienced forensic science lab leader who can reshape and strengthen the culture, systems, protocols, and integrity of the Forensic Science Agency it is highly unlikely you will be successful when applicants realize they won’t be in the top position, and instead will report to a manager who lacks any real depth of forensic science lab experience and training.

By the way if the Committee does decide to retain the generalist agency manager model, I am told that it is preferable for subsequent agency forensic lab units accreditation purposes, that the statutory language vest in whoever is the senior agency forensic science leader—not in a generalist agency director— responsibility for all final forensic science policy calls, all final lab scientific protocols, lab budgetary decisions, any and all lab manuals, and the like. Further, while the 6 year tenure element of the Bill is a practical incentive, given the District’s initial ten year track record, in recruiting a top flight forensic science lab director to accept the position, objectively the same need doesn’t apply for the generalist manager role.

Strengthening the Science Advisory Board. The Science Advisory Board (SAB) and the Stakeholder Council elements of the existing DC Forensic Science Agency were adapted from the State of Virginia’s crime lab legislative model, where in drafting the DC Bill we drew on Va.’s 40+ year’s experience as an independent agency NOT housed within a law enforcement or prosecutorial agency.

The two most important additions the existing DFS Science Advisory Board needs today are: (1) a legislatively provided right of prompt access to any case files, personnel, and other such materials upon request; and (2) unencumbered access to a modest level of

consulting resources, at its' sole discretion, to help it resolve specific case issues or scientific questions.

The failure of the Science Advisory Board to date to serve the essential oversight and scientific review function intended in the enabling statute stems directly from it's being sidelined and not properly resourced. Further legislative provisions are needed to strengthen and guarantee that the Science Advisory Board has an absolute right of access to any and all case files, and any other materials they deem needed to perform their oversight role. Despite the wording of the new Bill in this specific area I do have concerns about what the SAB's remedy is, were the Agency, for whatever reasons, to refuse to provide the information requested by the SAB. Inclusion of the declarative "Shall provide" may further reinforce compliance by Agency and other parties.

By design the Science Advisory Board is a technical policy group and not an operating board. The current statute specifies that it is to meet 4 times a year; more on call of the chair, etc. From time to time the SAB needs answers beyond their own knowledge, or more detailed than what they can reasonably provide as part time volunteer members. It would be most helpful if the SAB has access to a modest level of consulting/contract funds to enable it, when needed, to help the Board in resolving whatever substantive issues it has before it.

I don't support, and in fact object to the existing DFS FY 23 budget allocation of some $45,000 in stipends for SAB members. Paying SAB members will materially change their role, open the Board up to criticism from various advocates, limit the pool of potential SAB members, and present other unintended complications. I hope the pending Bill will remove any reference to paying SAB members, beyond reasonable travel and other associated expenses.

Next, by design the Department's Science Advisory Board is, and should be, comprised of trained forensic science lab practitioners. Their work is scientific in character not litigation or adversarially focused. The Stakeholder Council is the proper and logical place for defense, prosecution, law enforcement, and other criminal justice entities' concerns, positions and advocacy to be advanced. To add members of the bar to the SAB is a sure recipe to change its' very nature and will greatly reduce it's scientific focus and legitimacy.

I cannot speak to the need for the public health lab also having a science advisory board mechanism. If there is such a need there, it would be preferable to impanel an appropriate group of public health experts to help advise that lab. It is a mistake I believe to dilute the existing forensic science SAB's thrust and focus by adding members whose work and training is not in the forensic science or other collateral fields enumerated in the existing legislation.

Finally, Mr. Chairman it has been noted many times that an inherent limitation in the District's Forensic Science statute and operating fabric is that the federal justice system partners are not obligated to refer evidentiary disputes to the DFS independent Science Advisory Board for review, nor in turn to accept the SAB's findings and determinations. Hopefully, by strengthening the independent role of the SAB, prosecutorial and other federal justice system agencys' legitimate case or policy concerns can be fairly addressed and resolved to all parties, and our community's mutual public safety benefit.

This concludes my testimony.

Thank you.

Samuel F. Harahan
June, 2022

Statement of Steven D. Gordon

Chairman Allen, members of the Judiciary Committee, I appreciate the opportunity to comment on Bill B24-0838, the "Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022."

I have a longstanding interest in law enforcement and the administration of justice in the District of Columbia. I was an Assistant U.S. Attorney for 10 years and served as Chief of the Felony Trial Division; for 35 years, I have been in private practice here and have defended criminal cases. Sam Harahan, the former executive director of the Council for Court Excellence, David Perry, the former deputy director of the Federal City Council, and I prepared the initial draft of the legislation that established the Department of Forensic Sciences in 2012.

I support the general thrust of the new Act, and its three major objectives: (1) making the Department of Forensic Services ("Department") an independent agency; (2) strengthening the role of the Science Advisory Board ("Board") and ensuring that its members have technical and subject matter area expertise in specific forensic science disciplines; and (3) improving the procedures for addressing allegations or complaints of professional negligence, misconduct, misidentification, or other testing errors. I also support many of the specific provisions of this legislation. However, I believe that certain modifications are needed in order for the Act to achieve its objectives.

The Department Director

I fully support the concept of making the Department an independent agency and establishing a 6-year term for the Director. I also think it is a good idea to establish a senior position in the Department for someone with proven management and administrative skills. But I believe it would be a profound mistake to make this senior administrator the Director of the Department. Instead, this person should occupy a role such as Chief Operating Officer.

The Director needs to be a forensic scientist in order to understand many of the issues that arise and to make a sound decision about them. For example, the departures of the first two Directors of the Department relate to technical forensic science issues. Just as the Attorney General must be a lawyer and the Chief of the MPD must be a police officer, the head of the Department should be a forensic scientist, not simply a skilled administrator. Notably, the Houston crime lab, which is widely regarded as a model operation, is headed by a forensic scientist. The draft legislation recognizes that expertise in forensic science is an essential qualification for members of the Board; it is equally essential for the Director of the Department. Furthermore, D.C. needs to recruit a first-rate, experienced forensic lab director. The best candidates are all forensic scientists who will not be interested in a secondary position where they are not in charge.

I believe that, in general, the qualifications set by the Act for the Chief Forensic Sciences Officer are appropriate for the Department Director. However, I would heighten those qualifications in one respect. Based on input from an expert in the field, I believe that the person hired as Director should already have experience as the director at another forensic lab. Although the first two Directors of the Department were both forensic scientists with good credentials and some supervisory experience, neither of them had previously run an entire lab (as opposed to a

unit within a lab). I now think that an established track record as a lab director is an important qualification to ensure that the person selected will prove equal to the job.

It is essential that the right person be hired to head the Department. For the reasons I have outlined, I submit that this person must be a forensic scientist with an established track record running a crime lab. To help ensure that the right person is selected from among the qualified candidates, experienced forensic scientists should be involved in the vetting process. And it would be desirable if those forensic scientists were familiar with the operations of, and issues facing, the forensic science lab. One obvious source for such scientists is the Board, itself. Yet the legislation makes no provision for involving the Board in the selection of the Director. It simply provides that the Director shall be appointed by the Mayor, with the advice and consent of the Council. I recommend that the Board should be given a role in the selection process, that it should interview and then endorse or not endorse any final candidate(s) for Director, with its views being provided to the Mayor and the Council before they act.

The Board

I fully support the concept of revamping the Board to increase its authority and ensure that it has access to all laboratory documents and records. One cause of the lab's current problems is that the Director of the Department was able to withhold information from the Board and to ignore its views. So I endorse the Act's provision that gives the Board access to all laboratory documents and property that "are necessary to accomplish the Board's mission." But, to eliminate any debate about whether certain documents qualify under this standard, I would amend this provision to provide access to "all documents and property that the Board deems necessary to its mission." And I would delete the provision that establishes a procedure for situations in which the Board is denied access. There simply should not be any denials of access, and the legislation should not suggest otherwise.

I would also strengthen the Board's authority in another respect. I am advised that, in the past, there have been occasions when the Board wanted to communicate with the U.S. Attorney's Office about certain issues, and it was required to route those communications through the Mayor's office. I believe that, as the supervising body of an independent agency, the Board should be authorized to communicate directly with the U.S. Attorney's Office, the Stakeholder Council, or any other party when it decides such a contact is appropriate to its mission. I believe that the Board ought to copy the Mayor on such communications, but not be dependent on the Mayor to make them.

The Board should also have the ability to change policies and procedures at the lab if it decides that such changes are necessary. Thus, I support the provision in the Act that requires the Chief Forensic Sciences Officer (whom I believe should be the Director) to address and implement any corrective action identified by the Board.

I support the proposal to have the Board include five forensic scientists who have experience in the various disciplines that are performed by the lab: (1) DNA and biological material analysis; (2) firearms and tool mark examination; (3) fingerprint comparison; (4) computer forensics; and (5) analysis of controlled substances. I believe that each of these persons should have experience in a forensic lab setting, as opposed to an academic setting. However, the legislation

calls for each of these five persons to have both managerial and technical experience in the relevant discipline. I suggest that the requirement of managerial experience be dropped because, based on the advice of a forensic science expert, it will overly limit the pool of qualified candidates. Managerial experience is desirable, of course, but it should not be required. I also support the proposal to have the Board include one quality manager with experience in assessing forensic labs for compliance with accreditation requirements, and one member with expertise in statistical analysis.

However, I believe that certain changes should be made to the composition of the Board as proposed in the Act. First, I suggest the addition of two members who are current or former directors of a forensic lab. The "big picture" experience that they would bring to the Board could be invaluable.

Second, based on input from a former Board member, I understand that the forensic science lab and public health lab involve different disciplines, and that issues involved in managing the two labs are quite different. Historically, I am advised that the public health experts on the Board generally have provided little input with respect to issues at the forensic lab, and vice versa. This was not a significant issue while the Board played only an advisory role to the Department but it becomes important when the Board is to assume a much stronger, supervisory role over the management of the forensic science lab. Put bluntly, the members of the Board whose votes will control the operation of this lab all need to be experts in forensic science. They know the issues and they know how such issues are handled at other labs. Giving a voice and a vote on forensic issues to experts in a different discipline makes no sense and is a recipe for mischief.

Therefore I believe that there should be two separate Boards, one of which supervises the forensic science lab and the other of which supervises the public health lab. I note that this was one of the recommendations made by the consultant, SNA International, Inc., following its review of the Department's operations last year.

For similar reasons, I strongly oppose the proposal to add to the Board a member who is an attorney with experience in criminal prosecution or defense. I am a former prosecutor and current defense counsel, and I have experience with committees that have included both prosecutors and defense counsel. I know from experience that, in such situations, prosecutors or defense counsel -- current or former -- too often are partisans. The Board does not need a partisan, or a potential partisan, added to it. More fundamentally, an independent crime lab is supposed to be driven by science alone. The Board should be deciding the issues that come before it on the basis of the collective scientific expertise and experience of its members. Adding an attorney to the Board detracts from this objective and is unnecessary. If issues arise as to which the Board desires input from an experienced criminal practitioner, it can consult with the Stakeholder Council or one or more experienced attorneys of its choice.

The legislation provides that members of the Board may be compensated at rates that are established by rule and regulation. While I fully support reimbursing Board members for the expenses they incur in performing their duties, I believe that they should not be compensated for their service. Compensation creates potentially unhealthy incentives for members of the Board and provides a basis for questioning the motives behind decisions that they make. Moreover, a

number of the best potential candidates for positions on the Board are federal or state employees who may be precluded from undertaking any extracurricular position that involves compensation.

Addressing Allegations of Negligence, Misconduct, Misidentification, or Other Errors

I support the legislation's goal of giving the Board the final word in resolving issues relating to allegations of professional negligence, misconduct, misidentification, or other testing errors at the forensic lab. But I respectfully submit that the legislation goes too far in this regard and establishes an unworkable framework that would involve the Board too much in the nitty-gritty of these handling issues.

The handling and resolution of alleged incidents of negligence, misconduct, testing errors, etc. is a core function of managing a forensic science lab, just as it is with other agencies such as the police department. As such, it is appropriately performed in the first instance by the management of the lab. I am advised that, in recent years, about 50 - 100 Quality Corrective Action Reports (Q-CARs) have been generated annually. Thus, on average, alleged incidents arise about once or twice a week. My understanding is that most of these episodes are relatively minor and their resolution is not controversial.

The Board certainly should have oversight of this issue, receive copies of all allegations and resolutions, and be able to intervene whenever it sees fit. That is, in essence, what SNA recommended. It proposed that all customer complaints, non-conformances, and Q-CARs be brought before the Board, which provides oversight and:

- Has access to the appropriate documents to evaluate the issue fully.
- Are informed and approve of the root cause.
- Can conduct independent investigations using outside experts.
- Approve resolution and closeout.
- Has authority to recommend, approve or disapprove policies and procedures.

However, the legislation goes considerably farther than the SNA recommendation. It requires that each and every self-disclosure, complaint, or allegation concerning professional negligence, misconduct, misidentification, or other testing errors shall be investigated, at least preliminarily, by the Board. Then the Board shall determine whether the complaint or allegation merits: (1) an investigation by the Board; (2) a review of the complaint or allegation for educational purposes; (3) a dismissal of the complaint or allegation; or (4) any other method of investigation deemed appropriate by the Board. The Board must make this determination within 10 business days after receipt to the complainant and the Director. Further, if the Board conducts an investigation or review, it must prepare a written report. Finally, all correspondence and reports that are generated must be available to the public.

I think that mandating the Board to address each and every self-disclosure, complaint, or allegation that arises is a serious mistake, both in concept and for practical reasons. A board of directors is supposed to function at a 10,000 foot level, not down in the trenches. Corporations don't forward all employee misconduct reports to their Board of Directors in the first instance for

resolution. That is not the function of a Board. Nor is that how the Houston crime lab functions. That lab has a Quality Director on its management team who reports to the agency board of directors on her activities, including audit results and non-conformances. But the Houston board does not routinely involve itself in these issues.

Further, as a practical matter, the D.C. Board simply is not equipped to perform a front line reviewing function, addressing any complaint or allegation that arises within 10 business day. The members of the Board all have day jobs; they lack the time (and the interest) to address routine issues that arise at the lab. The only conceivable way they could do so is to create their own staff to whom they could delegate these issues. But where and how would the Board obtain such a staff or manage it? Would it utilize Department staff under its direction or create its own independent staff? Regardless of the solution chosen, it would either muddle the lines of authority at the lab or else create a separate management bureaucracy at the Board.

Disclosure of Laboratory Records

As a general proposition, I believe that the operations of the Department should be transparent. Further, in order for the criminal justice system to function properly, it is essential that the forensic science lab be independent and that it deal evenhandedly with the prosecution and the defense. Thus, I support the Act's requirement that the laboratory shall provide the prosecutor and defense with the same records regarding the analyses it performs. And I support the concept that, upon request, the lab must make all of its records available to either the prosecution or the defense.

However, I question the Act's rigid provision that, in every criminal case, the lab must generate and provide two complete sets of all the records relating to its analyses. This creates a substantial administrative burden yet, in many cases, it is unnecessary because the lab's results are not contested. For example, in most drug cases there is no dispute over the lab's conclusion that the substance at issue is cocaine or heroin or PCP. I favor, instead, a requirement that, upon request by either the prosecution or the defense, the lab must provide all records being sought. In practice, the lab may proactively provide most or all of its records to the prosecution and the defense in certain types of cases in order to head off inevitable requests down the road. But I think it is desirable to give the lab some flexibility in order to control its administrative burden.

Further, the volume of the records at issue can create practical concerns. The records relating specifically to an analysis in a particular case generally will not be voluminous and so it is logical for the lab to provide copies of all such records upon request. But some background documents that relate generally to lab procedures or lab equipment may be quite voluminous, making it overly burdensome for the lab to provide a copy of such records upon request, as opposed to providing access to those records or making them available online. Thus, I question the provision in the Act that requires the routine production, in every case, of any logs related to the equipment or materials used in testing. Those logs will seldom end up playing a role in a case and they may be voluminous. I note that the Act provides for other similar "background" materials, such as manuals and internal validation studies to be published on the lab's website as opposed to being copied and produced in each and every criminal case.

Finally, I have privacy concerns about the Act's provision that requires the lab to publicly disclose on its website all reports that address quality assurance, including quality corrective actions, quality preventative actions, and other quality nonconformities. To the extent that these records name individuals involved in alleged errors, they partake of the character of personnel records. For good reasons, personnel records generally are not publicly available. I do not suggest that the lab should be able to withhold these records from all review. Certainly, they should be available to the prosecution and the defense if a court finds they are relevant to a criminal case. But I don't believe that public disclosure of all quality control documents is necessary to instill public confidence in the forensic science lab. What is essential is that these records are subject to review by knowledgeable outside parties and by those whose interests are directly affected. I believe that the issue of public disclosure of employee names should be left to the Board, which is in the best position to understand the competing considerations and formulate an appropriate policy. If public disclosure is nonetheless mandated by this legislation, then I submit that the names of lab personnel should be redacted from the records that are disclosed.

Conclusion

The establishment of an independent forensic crime lab was an important step forward for law enforcement and the administration of justice in the District of Columbia. The lab has been, and should continue to be, an essential asset for the community and its law enforcement agencies. It is vital to get the lab off the sidelines and back on the playing field.

I applaud the authors of the proposed legislation for taking a major step toward that goal. As I said at the outset, I support the three principal objectives of the Act: (1) making the Department an independent agency; (2) strengthening the role of the Board; and (3) improving the procedures for addressing allegations or complaints of professional negligence, misconduct, misidentification, or other testing errors. I believe that, with the revisions we have suggested, the Act will accomplish its objectives and improve the functioning of the crime lab.

Steven D. Gordon

June 2022

Wednesday, July 13, 2022
Hearing transcript

Testimony of Tiffany Roy
Volunteer, DC Justice Lab

Committee on the Judiciary and Public Safety
Public Hearing on the
Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022

June 23, 2022

Dear members of the Committee on the Judiciary and Public Safety,

Thank you for the opportunity to testify on the Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022.

For more than sixteen years, I have studied, taught, and specialized in forensic DNA interpretation, the effects of human factors in forensic science, and model practices for laboratories and expert witnesses in criminal cases. I provide counsel to prosecutors, defense attorneys, and private clients at the federal and state level in the United States and internationally. I hold degrees in law and science and have testified as an expert witness many times.

In addition to the remarks I shared during this year's Performance Oversight Hearing for D.C.'s Department of Forensic Science, the oral testimony I provided on June 23, 2022, and the written annotations to the proposed legislation I forwarded to Councilmember Allen's staff, I write to highlight a few key recommendations for improving this bill.

1. **Hire a scientist with lab management experience.**

During the hearing, councilmembers inquired about the most important qualifications for the Director of the lab. Peter Stout explained that laboratories are fantastically complex businesses and wickedly difficult to run. The District of Columbia should require that the person in charge of the department have **(1)** a strong educational background in science, **(2)** expertise in practice standards, and **(3)** experience managing a large institution. A scientist who has run a lab other than a forensic lab (such as a medical or pharmaceutical laboratory) would be preferable to a non-scientist specializing in law or business management.

2. **Improve transparency.**

> *"I would urge you all to try to aim for the highest level of transparency and error. We need to normalize it in forensics. We need to have the lawyers understand that human people are doing this work, and we expect them to make mistakes. And when we don't see evidence that they're investigating errors and that they're documenting their errors, that's when we should be concerned."*

Improving transparency is critically important to avoiding a recurrence of the problems that led to the lab's loss of accreditation. In regular intervals, the laboratory should be required to publish online: training manuals, quality manual standard operating procedures, internal validation studies, proficiency tests, internal and external audit results, corrective actions, incident reports, quality investigations, and complaints. Other laboratories are doing this, and we should be demanding this level of transparency from all of our forensic laboratories.

Disclosure of all potentially discoverable information to prosecutors and defense attorneys should be automatic. Peter Stout spoke to Texas' **Michael Morton Act**, which creates a positive obligation on the part of the state to proactively disclose materials that are exculpatory, mitigating, or potentially impeaching, protecting the rights of the accused under the Due Process Clause and *Brady v. Maryland*. As a result, the laboratory releases all information to the parties without a discovery order, unlike other jurisdictions (including D.C.), where the release of information becomes a tactical part of the case and the lab gets sandwiched between all of the various tactics of the defense and prosecution. Making early and complete disclosure an expectation for all parties makes it a lot easier for the lab. The District should adopt similar discovery reforms. Measures have previously been introduced by Councilmembers Cheh, Bonds, Mendelson, Grosso, and Silverman.[1] And, Councilmember McDuffie convened a working group to examine these issues in 2016.[2] However, each effort has expired in Committee.

3. Authorize expert depositions.

We propose adding a new D.C. Code § 23-2001 that reads:

(a) At any time after the filing of an indictment or information in a criminal case, any party may take a discovery deposition upon oral examination of any expert witness who may be called by the other party to testify at trial.

(b) Nothing in this section shall be construed as limiting discovery depositions by agreement between the parties.

Allowing attorneys to take the deposition of expert witnesses in advance of trial would help prosecutors and defense attorneys discover individual errors and systematic problems before they reach a jury. Oral depositions are permitted in criminal cases without leave of court in Florida, Indiana, Iowa, Missouri, New Hampshire, North Dakota, and Vermont.[3]

[1] B21-0189, The Police and Criminal Discovery Reform Amendment Act of 2015.
[2] The Working Group on Discovery included representatives from the Office of the United States Attorney for the District of Columbia, the Office of the Attorney General for the District of Columbia, and the Public Defender Service for the District of Columbia. It also included a member of the civil bar and a member of the defense bar (Patrice Sulton, who now serves as Executive Director of DC Justice Lab).
[3] Fla. R. Crim. P. Rule 3.220 (all cases, all witnesses); IND. CODE § 35-37-4-3 (2021) (all cases, all witnesses); Iowa R. Crim. P. 2.13 (all cases, all witnesses); MO. REV. STAT. § 545.415 (2021) (prosecutors in all cases, all witnesses); N.H. REV. STAT. § 517:13 (2015) (experts in felony cases); N.D. R. Crim. P. Rule 15 (all cases, all witnesses); VT. R. Crim. P. 15 (felony cases, all witnesses).

4. **Give the oversight body adequate authority to act.**

During the hearing, witnesses disagreed about the appropriate role of an independent oversight body. Some advocated for substantial authority to hold the laboratory accountable, while others cautioned about the important distinction between an oversight role and a managerial one. While the advisory board should not be tasked with dictating to the Department how to do its job in every case, it is important that it be able to take action when serious concerns are raised. In those instances, the board must be able to investigate, compel documents independently, and to have some real oversight and regulatory ability.

For these reasons, we express our support for the Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022 and urge the Council to amend the bill as described herein.

DC Justice Lab is a team of law and policy experts researching, organizing, and advocating for large-scale changes to the District's criminal legal system. We develop smarter safety solutions that are evidence-driven, community-rooted, and racially just. We aim to fully transform the District's approach to public safety and make it a national leader in justice reform.

Councilmember Allen and members of the Judiciary Committee, my name is David Perry. Thank you for giving me the opportunity to comment upon some of the key issues that are set forth in B24-0838, the “Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022.” Mr. Chairman, as you are aware, more than a decade ago Sam Harahan, Steven Gordon, and I played a major role in drafting enabling legislation, subsequently unanimously approved by the DC Council, that led to the establishment of the DC Department of Forensic Sciences.

The Committee’s current proposal addresses a significant number of important policy and technical issues. My hope is that as your bill moves through the legislative process, there will be future opportunities to discuss and comment upon some of the more fine-grained, technical matters. Today, however, I will confine my remarks to what I consider to be the most important “big ticket“ issues.

The Committee is recommending that DFS become an independent agency rather than, as is the case today, a department under the direct control of the Mayor. My colleagues and I believe that anything that depoliticizes DFS and underscores the importance of DFS functioning as a truly independent, science driven entity is a step in the right direction. We therefore wholeheartedly support this proposed change, provided that the bill is amended to require that the agency director must be a qualified senior forensic scientist. We also support the proposal calling for the appointment of the DFS Director to a six-year term, with removal only for cause. The latter should make the position of DFS Director more appealing to highly qualified candidates and should enhance the District’s ability to attract an experienced forensic scientist to helm the agency.

As to the leadership of DFS, I would note that there is nothing in the enabling legislation that created DFS that inexorably led to the problems we’re all familiar with in the department. DFS’s first two directors were credentialed forensic scientists. However – – and this is a key point – – neither of those directors were deeply experienced managers, nor had either of them run a major crime lab. If DFS is to live up to the high hopes we all had for the department at its inception, the District needs to hire an experienced forensic scientist who has had broad senior level management experience and who has successfully led a major forensic agency. Thus, we do not favor the proposed change that could put a bureaucrat in charge of DFS, rather than an experienced forensic scientist. We do, however, favor creating a new senior level position, that of chief operating officer (COO). This position should be filled by an experienced, senior manager who understands and has dealt successfully with the complexities of an agency like DFS.

I will leave for another day the issue of whether a second, stand-alone science advisory board should be established for the public health laboratory. But as to the SAB for DFS, we think it is essential that *all* the forensic disciplines are represented on the SAB, ideally by experienced practitioners who have had operational experience in a forensic agency. The SAB in our view should be an entity to provide guidance to DFS’s leaders, to assess and hopefully resolve important scientific disagreements among the parties that, inevitably, will arise from time to time, and to oversee and review the activities of DFS; it should not be involved in day-to-day management issues. The latter, in our judgment, must remain within the purview of the senior leadership of DFS.

The SAB must have unfettered access to any and all information, such as case files, QCARS, and relevant correspondence, that it feels it needs in order to carry out its oversight functions. Unfortunately, this has been a problem in the past. We are aware of instances in which the SAB requested information from either DFS or from the US Attorney's Office but its requests went unheeded. The proposed amendments to the DFS statute must ensure that stonewalling the SAB will no longer be tolerated or permitted.

There almost certainly will be occasions, probably relatively infrequent, when the SAB may determine that it needs to retain outside expert scientific analysis and counsel to assist its deliberations. We believe that in those instances the District government should make available to the SAB the financial resources to enable it to retain that expertise.

Finally, we have been told that for a number of reasons, service on the SAB in the Nation's Capital should not be compensated. Apparently, even offering only a modest stipend would preclude the possibility of many Federal and state government employees serving on the SAB. Moreover, for many of the highly qualified candidates whom the District would hope to attract to the SAB, service on the Board would be a "feather in their cap" professionally. That alone, and of course covering all the members' direct expenses, should be sufficient to attract a roster of members with the requisite experience and expertise.

Thank you for the invitation to provide testimony at the Committee Hearing. SNA reviewed the legislation and found that it aligns with the recommendations presented in our December 8, 2021, *DC Department of Forensic Sciences Laboratory Assessment Report*.

As you know, the assessment report was based on several months of a team effort (13 experts across various disciplines) who incorporated their findings and recommendation. The report documents the SNA Subject matter expert review of the DFS Forensic Laboratory Operations. The report:

- identified the root causes of the events that led to the withdrawal of ANAB ISO/IEC 17025:2017 accreditation,
- identified additional nonconformances with forensic accreditation standards,
- outlined remediation to regain compliance with forensic accreditation standards, and
- made recommendations to help DFS sustain forensic laboratory accreditation.

The subject matter experts reviewed the report and agreed it presented a collective summary of past events and a consensus on a viable path forward.

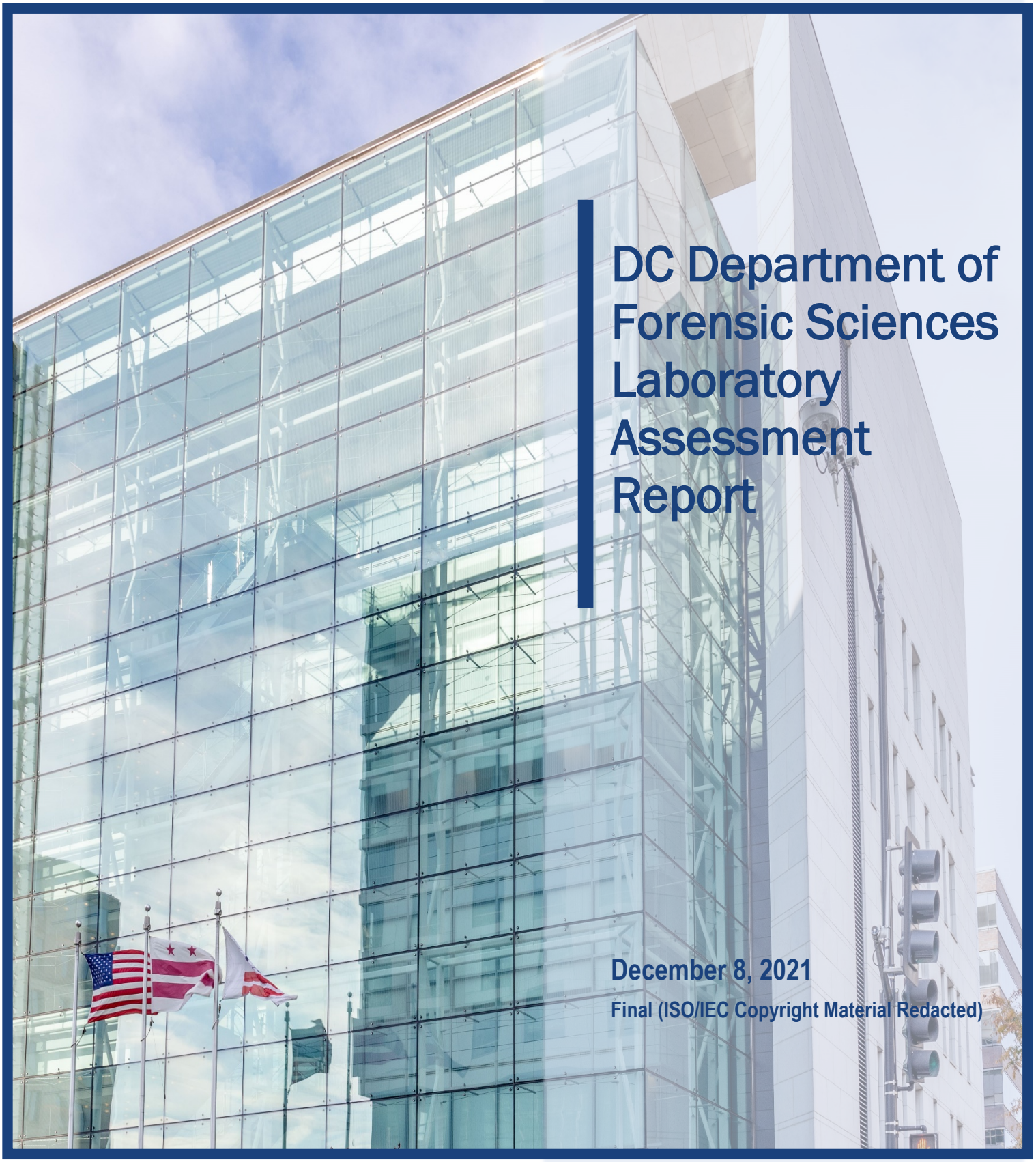
With this in mind, SNA recommends that the report stand alone as our testimony to the Committee.

Again, thank you for the opportunity to provide testimony and for your inclusion of the complete report in support of developing a full legislative record.

Amanda C. Sozer, Ph.D.

Chief Science Officer

SNA International



DC Department of Forensic Sciences Laboratory Assessment Report

December 8, 2021

Final (ISO/IEC Copyright Material Redacted)

SNA INTERNATIONAL
The Global Leader in Forensics, Biometrics, and Identity Intelligence

Executive Summary

Background

On April 2, 2021, the American National Standards Institute (ANSI) National Accreditation Board (ANAB) suspended the Washington, D.C. Department of Forensic Sciences (DFS) International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) 17025:2017, AR 3125 forensic testing accreditation. ANAB cited findings resulting from an investigation into purported errors made by the DFS Firearms Examination Unit and the DFS Management's alleged lack of disclosure reported by the United States Attorney's Office District of Columbia (USAO) as the cause for the suspension. On May 2, 2021, one month after the initial suspension, the ANAB withdrew the accreditation of all five of the Forensic Science Laboratory's forensic disciplines: Firearms Examination Unit, Forensic Biology Unit, Forensic Chemistry Unit, Latent Fingerprint Unit, and the Digital Evidence Unit. The DFS immediately discontinued forensic casework operations.

Following the resignation of the DFS Director, the Deputy Mayor for Public Safety and Justice immediately appointed an Interim Director. SNA International was hired to review forensic operations to identify issues and recommend steps to put DFS on a path to regain and sustain accreditation. SNA International formed a team of thirteen Subject Matter Experts with experience in the disciplines relevant to DFS, including firearms and toolmarks, DNA, latent fingerprints, digital evidence, quality, and forensic laboratory management. Team members averaged 32 years of forensic experience. The review took place from June 3, 2021, to September 22, 2021.

This report documents SNA International's review of DFS Forensic Operations, identifies root causes of the events that led to the withdrawal of ANAB ISO/IEC 17025:2017 accreditation, identifies additional nonconformances with forensic accreditation standards, outlines corrective action steps (remediation) to regain compliance with forensic accreditation standards, and makes recommendations to help DFS sustain forensic accreditation. While many recommendations in the report pertain to specific units in the DFS, there are also broader recommendations that impact DFS leadership and laboratory-wide practices, procedures, and policies. For example, the report includes recommendations regarding changes to the organizational structure to improve program integration, communications, and operational oversight. This report also recommends changes to the current structure of the DFS Quality Unit to enable the DFS Forensic Operations to better meet and maintain accreditation standards.

Root Causes of Accreditation Withdrawal

The McLeod case was a trigger for the withdrawal of accreditation. The McLeod case surfaced several issues in the DFS, including staff not having sufficient expertise to perform their duties, an ineffective quality management system that did not fully

investigate customer complaints or resolve issues, and a culture that discouraged candid feedback from staff to leadership. The review process revealed that problems similar to those surfaced by the McLeod case were also present in other units.

SNA identified ten root causes of the issues that led to the withdrawal of accreditation, as follows:

- There was an absence of clear, relevant, descriptive expectations regarding customer service. Executive Leadership did not appear to adequately prioritize customer service as an essential part of the DFS core mission.
- Executive Leadership did not consistently demonstrate the temperament required to navigate complex relationships and customer issues to achieve positive, mutually beneficial outcomes.
- Executive Leadership did not establish the required levels of oversight and accountability for forensic operations to maintain standards and expected performance levels.
- Executive Leadership may have misinterpreted the concept of laboratory independence resulting in not maintaining the required levels of accountability to their customers.
- Executive Leadership was unable to create an environment where they and the staff consistently demonstrated skills in conflict resolution both internal and external to the organization.
- As a result of the segmented organizational structure of the DFS, forensic operations were not organized in a manner that promoted a collaborative, integrated work environment.
- There was an absence of foundational documents that characterized the organization's desired cultural atmosphere, operational focus, and role in the justice ecosystem.
- Executive Leadership did not consistently display the capacity to properly recruit, select, match, and train employees to meet workplace requirements.
- Executive Leadership did not create and facilitate an open and constructive environment to foster a culture of open dialogue and healthy debate.
- Executive Leadership did not effectively align resources against current and emergent mission priorities.

Summary of Review Details

The scope of this review was broader than a typical ISO/IEC 17025:2017 forensic audit/assessment and included an analysis of organizational structure, culture, and internal and external conflict management. SNA International used the ANAB ISO/IEC 17025:2017 Standard as a framework for reviewing forensic operations. While this document is not an accreditation audit/assessment report, it identifies areas of

nonconformance with that standard. Table 1: DFS Nonconformance Areas and Recommendations summarizes the nonconformance areas that must be addressed to regain accreditation and recommendations to help sustain accreditation. There are a total of 33 areas of nonconformance and 47 recommendations.

Table ES-1: DFS Nonconformance Areas and Recommendations

Forensic Operations Function	Number of Nonconformance Areas *(Changes to meet accreditation standards)*	Number of Recommendations *(Changes to help sustain accreditation)*
Management and Support Functions		
Legislation	Not Applicable	6
Executive Leadership	4	2
DFS Organization	0	4
Job Descriptions	0	1
Management Training	0	1
Staff Training and Continuing Education	2	6
Independence and Customer Service	0	2
Data Management	0	1
Quality Management	2	5
DFS Forensic Document Organization	0	1
Legal	0	3
Security	1	0
Chain of Custody	1	0
Crime Scene Sciences Division	0	1
Casework Units		
Digital Evidence Unit	10	2
Firearms Examination Unit	4	4
Forensic Biology Unit	3	7
Forensic Chemistry Unit	3	0
Latent Fingerprint Unit	3	1

Recommendations for Moving Forward

SNA recommends aligning plans and resources to achieve the following four strategic goals:

- Pursue, secure, and maintain re-accreditation.
- Restore trust and credibility with customers and stakeholders.
- Establish cooperative, beneficial relationships with customers and stakeholders.
- Build updated organizational practices, policies, and protocols that promote excellence in all forensic operations, scientific practices, and business matters.

Following are recommended key actions for DC Government leadership, which includes the chain-of-command from the DFS Director to the Mayor's office:

1. Establish an interviewing and hiring committee to select forensic leadership personnel for DFS leadership positions to the Manager level. The committee should include external stakeholders and the Head of the Human Resources department to ensure the full breadth of recruiting and candidate selection methods are available to the committee.
2. Secure the services of an external consultant to support the DFS Executive Director through the re-accreditation process. The consultant should be experienced in forensic laboratory operations and quality management systems to provide an external perspective on progress and the performance of forensic operations.
3. Reorient Stakeholder Council meetings to address the overall performance of operations, DFS customer support and responsiveness, and brand perception. Develop an agenda that enables each stakeholder to express their perspective on DFS performance and identify areas for improvement. Develop a periodic survey to characterize and measure stakeholder views.

Following are recommended key actions for DFS Leadership, which includes the chain of command from DFS Unit Managers to the DFS Director:

1. Begin working with stakeholders, including the USAO, Office of the Attorney General, and the respective Public Defender Offices, to re-examine the casework from the reports issued by the Firearms Examination Unit and the Latent Fingerprint Unit since DFS began conducting examinations. In addition, because the Digital Evidence Unit technical procedures were not based on validated methods or current best practices and there are no records to document staff completing required training and competency testing, the DFS should secure the services of qualified external independent examiners to review DEU casework.
2. Complete the Quality Corrective Action Reports required to apply for ANAB accreditation for the Forensic Biology Unit and Forensic Chemistry Unit. Both units

have internal resources and processes for executing quality operations. By assuming responsibility for their own quality systems, the Forensic Biology Unit and Forensic Chemistry Unit can achieve accreditation independent of other DFS units, including the current Quality Unit. In addition, the corrective actions and recommendations for these units are relatively minor in totality in that they can be completed within a matter of weeks.

3. Establish a hiring committee to fill open Unit Technical Leader and other key staff positions modeled after the hiring committee for DFS executives. While potentially less-senior representatives from Human Resources and external stakeholders may participate, this approach confers the importance of these selections and reduces the likelihood hiring decisions will be driven by expediency.
4. Identify change management action teams to develop detailed change management action plans to complete the remaining Quality Corrective Action Reports and recommendations identified in this report.
5. Secure the services of experts in ISO/IEC 17025 accreditation requirements to conduct an independent assessment for the Firearms Examination Unit, Latent Fingerprint Unit, and Digital Evidence Unit. When the independent assessment(s) shows forensic operations are ready for accreditation, apply for ISO/IEC 17025 forensic accreditation in the Firearms Examination Unit, Latent Fingerprint Unit, and Digital Evidence Unit.

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Abbreviation/Acronym/Glossary

Term	Meaning/Explanation
AAFS	American Academy of Forensic Sciences
ABC	American Board of Criminalistics
AFIS	Automated Fingerprint Identification System
AFTE	Association of Firearm and Tool Mark Examiners
ALS	Alternate Light Source
ANAB	ANSI National Accreditation Board
ANSI	American National Standards Institute
AR	Accreditation Requirement
ASCLD	American Society of Crime Laboratory Directors
ASQ	American Society for Quality
CEU	Central Evidence Unit
CLIA	Clinical Laboratory Improvement Amendments
CMAP	Change Management Action Plan
CoC	Chain of Custody
CODIS	Combined Offender DNA Index System; The combination of LDIS, SDIS, and NDIS
CSS	Crime Scene Sciences Division
CSSU	Crime Scene Sciences Unit
Customer	The organization or individual that could or does receive the DFS casework examination reports and services (e.g., courtroom testimony)
CV	Curriculum Vitae
DC	District of Columbia
DEU	Digital Evidence Unit
DFS	Department of Forensic Sciences
DFS Leadership	From the Unit Managers to the DFS Director
DNA	Deoxyribonucleic acid

Term	Meaning/Explanation
DOM	Department Operation Manual
Executive Leadership	DFS Director, Senior Deputy Director, General Counsel
ES	Executive Summary
FBI	Federal Bureau of Investigation
FBU	Forensic Biology Unit
FCU	Forensic Chemistry Unit, located in the PHL
FEU	Firearms Examination Unit
Final Report	Internal USAO Report (2021) Final Report of Review and Audit of Selected Casework of the Firearms Examination Unit of the Forensic Science Laboratory, Division, Department of Forensic Sciences. by Budowle, B., Carroll, J., and Weller, T.
FIU	Forensic Intelligence Unit
FQS	Forensic Quality Services, Inc. international accreditation agency that was acquired by ANAB in 2011
FSAB	Forensic Science Advisory Board
FSL	The Forensic Science Laboratory Division consists of the FBU, FEU, LFU, and DEU according to the DFS website (https://dfs.dc.gov/page/forensic-science-laboratory-division-fsl) The DEU is not listed under the FSL on the DFS Organizational Chart
Forensic Operations	Areas of the DFS that were covered under the ANAB ISO/IEC 17025:2017 forensic accreditation: • Management • Quality Unit • Training Unit • Office of General Counsel • Security • DEU in the Cyber Operations Section • FBU, FEU and LFU in the Forensic Science Laboratory • FCU in the Public Health Laboratory
Forensic Units	Refers to the five DFS units that provide forensic science services: DEU, FEU, FBU, FCU, and LFU
FTE	Full-time employee
GC	General Counsel
IAI	International Association for Identification

Term	Meaning/Explanation
ISHI	International Symposium on Human Identification
ISO/IEC 17025:2017	International Organization for Standardization/International Electrotechnical Commission 17025:2017 requirements for testing, sampling and calibration laboratories
IT	Information Technology
LFU	Latent Fingerprint Unit
LDIS	Local DNA Index System
LIMS	Laboratory Information Management System
LOM	Laboratory Operation Manual
Mideo Systems, Inc.	Vendor providing forensic applications to the FEU and the LFU
MPD	DC Metropolitan Police Department
NAS	National Academy of Sciences
NDIS	National DNA Index System
NGS	Next generation sequencing also referred to as massively parallel sequencing
NIBIN	National Integrated Ballistic Information Network: A national database of images from bullets and cartridge cases either produced by test firing or for evidence collected from a crime
NIJ	National Institute of Justice
NIST	National Institute of Standards and Technology
OAG	Office of the Attorney General for the District of Columbia
PDF	Portable document format used to present and share documents
PDS	Public Defenders Service of the District of Columbia
PHL	Public Health Laboratory Division
PHSAB	Public Health Science Advisory Board
POI	Person of interest
QA	Quality Assurance
QAM	Quality Assurance Manual
QAS	Quality Assurance Standards
Q-CAR	Quality Corrective Action Report

Term	Meaning/Explanation
QMS	Quality Management System
Q-PAR	Quality Preventive Action Report
Quality Unit	The DFS referred to the team of quality assurance specialists and quality staff who worked for the Senior Deputy Director as "DFS Quality" (e.g., Section 2 of DOM07 Document Control 1275 Revision:10). For clarity purposes in the report, SNA uses the term Quality Unit for the old Quality, and Quality Support Unit to denote the new group
QualTrax®	Compliance management software used by a number of laboratories for document control, process management, competency testing, training, and accreditation support
RS&A	Ron Smith and Associates
SAB	Science Advisory Board, also referred to as the Board
SDIS	State DNA Index System
SME	Subject matter expert
SNA	SNA International
SOP	Standard operating procedure
STRmix™	Software tool developed and copyrighted by the New Zealand Environmental Science and Research Ltd. (ESR) as a continuous approach to probabilistic DNA mixture interpretation
SWGDAM	Scientific Working Group on DNA Analysis Methods
SWGDE	Scientific Working Group on Digital Evidence
TAT	Turnaround time
Training Unit	While DFS refers to them as Training, SNA will use the term Training Unit throughout this report
USAO	United States Attorney's Office for the District of Columbia
USAO Firearms Review and Audit Team	Bruce Budowle, James Carroll, and Todd Weller - Experts hired by USAO to investigate complaints brought by the USAO

1 Introduction

1.1 Background

On August 17, 2011, the Department of Forensic Sciences Establishment Act of 2011 (DC Law 19-18; DC Official Code §5-1501.01 - §5-1501.16) moved the forensic laboratory division from the DC Metropolitan Police Department (MPD) to a newly created agency, the DC Department of Forensic Sciences (DFS). This legislation was, in part, a response to a National Academy of Sciences (NAS) report, *Strengthening Forensic Science in the United States: A Path Forward* (National Research Council, 2009), which recommended forensic laboratory independence by removing forensic laboratories from the chain-of-command of law enforcement agencies. The legislation authorized funding for the construction of a state-of-the-art laboratory facility to consolidate medical examiner services, crime scene services, forensic laboratory operations, and public health laboratory operations.

The legislation establishing the DFS states the following:

> *(b) The mission of the Department shall be to provide high-quality, timely, accurate, and reliable forensic science services and public health laboratory services with:*
>
> *(1) The use of best practices and best available technology;*
>
> *(2) A focus on the delivery of unbiased science and an emphasis on promoting transparency in operations; and*
>
> *(3) The goal of enhancing public safety and the fair and balanced administration of justice.*

The legislation also created a Science Advisory Board (SAB, referred to as the Board) and Stakeholder Council. Additionally, the legislation outlined the requirements to hold the position of Director and the obligations of the position. The legislation specifically listed the requirement of obtaining and maintaining accreditation and reporting to the Board any allegation of professional misconduct.

DFS operations commenced on October 1, 2012, under the laboratory's first Director, Dr. Max Houck. Dr. Houck oversaw the start of the transition of the forensic services from the MPD to the DFS. In 2015, Dr. Houck left his position after the DFS Forensic Biology Unit (FBU) accreditation was suspended due to incorrect DNA profile mixture interpretation practices.

Following a national search, in July of 2015, Dr. Jenifer Smith was appointed the DFS' second Director. Dr. Smith resigned from the DFS in 2021 following the ANSI[1] National

[1] American National Standards Institute.

Accreditation Board (ANAB) withdrawal of accreditation of the entire Forensic Science Laboratory Division (FSL) on May 2, 2021.[2] See Appendix A: DFS Accreditation History.

To obtain an independent perspective on DFS operations from external forensic subject matter experts (SMEs), the DC Office of Contracting and Procurement entered into a contract with SNA International, LLC (SNA) on May 27, 2021. SNA was tasked to review all aspects of the FSL operations and to work with laboratory stakeholders to determine the viability and means by which the laboratory could move forward in meeting/exceeding the International Organization for Standardization/International Electrotechnical Commission (ISO/IEC) 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories[3] and ANAB ISO/IEC 17025:2017 Forensic Science Testing and Calibration Laboratories Accreditation Requirements (AR) (AR 3125:2019).[4] SNA was contracted to assist with review and assessment in the areas of:

- Identifying the root cause(s)[5] for the withdrawal of accreditation.
- Surfacing organizational challenges that may be present but not previously identified and reported.
- Conducting risk analyses surrounding the prevailing circumstances.
- Developing an appropriate corrective action plan(s) to remedy the withdrawal of accreditation while providing assistance in helping to restore and maintain DFS accreditation.
- Developing prioritized change management action plans to address issues that may be present but not immediately identified by ANAB or the United States Attorney's Office for the District of Columbia (USAO).

The review took place from June 3, 2021, to September 22, 2021. This report identifies root causes leading to the withdrawal of accreditation, elucidates additional examples of forensic accreditation nonconformance, proposes macro root cause effects[6] for the identified nonconformances, and outlines the corrective action steps (remediation) to comply with ANAB ISO/IEC 17025:2017 and AR 3125 accreditation requirements. This report also provides recommendations that will enhance the DFS' ability to maintain ANAB accreditation compliance and better meet the needs of their customers going forward. The recommendations are presented in yellow text boxes throughout the document.

[2] The Crime Scene and Central Evidence units of the DFS were not accredited at the time the forensic laboratory's accreditation was withdrawn.
[3] ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories.
[4] ANAB. (2019, April 29). ISO/IEC 17025:2017 - Forensic Science Testing and Calibration Laboratories Accreditation Requirements. (AR 3125) https://anab.ansi.org/2018-iso-iec-17025-forensic-accreditation-documents-0.
[5] For the purpose of this study, root cause is defined as a set of circumstances that leads to unintended consequences or failure.
[6] For the purposes of this report macro root cause effects are a result of a culmination of various root causes.

1.2 Terminology

The following terms are used throughout this report:

- *Forensic Operations* encompasses the following groups within DFS: Management, Quality, Training, Office of General Counsel, Security, and the Forensic Units: Digital Evidence Unit (DEU), FBU, Firearms Examination Unit (FEU), Latent Fingerprints Unit (LFU), and Forensic Chemistry Unit (FCU).
- *DC Government Leadership* includes the chain-of-command from the DFS Director to the DC Mayor.
- *DFS Leadership* encompasses Unit Managers to the DFS Director.
- *Executive Leadership*[7] includes the DFS Director, the Senior Deputy Director, and General Counsel.
- *Intermediate Leadership* includes the FSL Director, Forensic Unit Managers, and the Managers of the Quality and Training Units.[8]
- *Quality Unit* refers to the old DFS Quality Unit, and *Quality Support Unit* denotes the new group.
- *Customer* is the organization or individual that could or does receive the DFS casework examination reports and services (e.g., courtroom testimony).

1.3 Methodology

SNA formed a team of thirteen Subject Matter Experts (SMEs) with experience in the disciplines relevant to DFS, including firearms and toolmarks, DNA, latent fingerprints, digital evidence, quality, and forensic laboratory management. Team members averaged 32 years of forensic experience. See Appendix B: SNA Subject Matter Experience. The methodology for the review consisted of 1) evaluating DFS operations, 2) interviewing DFS personnel and stakeholders, and 3) conducting root cause analyses.

1.3.1 Evaluating DFS Operations

The SMEs reviewed[9] the following areas of DFS in the context of the ANAB ISO/IEC 17025:2017 forensic accreditation Standard: Management, Quality, Training, Office of General Counsel, Security, DEU in the Cyber Operations Section, and FBU, FEU, and LFU in the FSL. The SMEs also assessed DFS physical security and data and evidence management using the ISO/IEC 17025:2017 Standard and the ANAB AR 3125

[7] DFS used the term Directorate defined in DOM08 Document Control Number 1277 Revision 8 as key managerial personnel consisting of Directors, Deputy Director, the Chief Operating Officer and General Counsel.
[8] The Quality and Training managers are referred to in the DFS job descriptions (OF-8) as Supervisory Quality Assurance Specialist and Supervisory Instructional Systems Specialist, respectively.
[9] SNA did not conduct a formal accreditation assessment.

supplemental accreditation requirements.[10] This report identifies areas of nonconformance within each DFS group.

The SMEs initially focused on identifying and characterizing the events leading to the withdrawal of the FSL ISO/IEC 17025:2017 accreditation and the most recent laboratory operations (activities and documents associated with late 2020 and 2021). The SMEs reviewed case files, standard operating procedures (SOPs), manuals, policies, forms, validation studies, training curricula, training records of current examiners and trainees, proficiency test records, and skill and competency assessment records. SNA received and processed approximately 20,000 documents in support of the review.

The SMEs conducted a week-long series of meetings on-site at the DFS. The DFS provided full access to staff and the records requested. The SMEs examined documents, forms, and records while on-site, where possible, observed laboratory staff performing their daily tasks, and then conducted follow-up interviews regarding job duties and overall laboratory operations.

The SMEs conducted individual and small group structured interviews with current and former SAB members, stakeholder council members, current and former DFS staff, and DFS customers. The interview questionnaires contained open-ended questions on the following topics:

- The interviewee's relationship with the DFS
- Policies and procedures
- Data management/communication
- Maintaining accreditation
- DFS resources
- Customer satisfaction
- Opportunities for improvement
- Anything else the interviewee thought would be helpful and would like to discuss

SNA conducted 29 interviews with a total of 49 personnel. Upon completion of the initial assessment, SNA disseminated a follow-up survey to the individuals to elicit any feedback the interviewees felt they may have wanted to add to their initial comments.

To solicit additional feedback, SNA provided anonymous surveys to 214 current[11] DFS employees covering topics related to:

- Performance expectations and feedback
- Staff resources
- Policies
- Procedures and processes

[10] ISO/IEC 17025:2017- Forensic Science Testing and Calibration Laboratories Accreditation Requirements.
[11] Number of employees as of September 22, 2021.

- Staff abilities to perform expected work
- Recruitment of staff
- Training
- Areas for improvement

SNA received 54 responses to the anonymous survey, summarized in Appendix C: Results of the Anonymous Survey Sent to DFS Staff.

1.3.2 Root Cause Analysis

The SMEs categorized their observations using the Gilbert Behavioral Engineering Model (BEM).[12] The BEM has been used in organizational development and problem-solving activities for decades and systematically identifies barriers to DFS individual and organizational performance. SNA's Gilbert's BEM analyses included six variables: information, resources, incentives, knowledge, capacity, and motives. The variables are grouped into two categories: operating environment and people. Appendix D: Gilbert's Behavioral Engineering Model Analysis provides examples of barriers to DFS individual and organizational performance.

2 Review of the McLeod Case

SNA conducted an independent review of the McLeod Case prior to meeting with the USAO Firearms Review and Audit Team.[13] See Appendix E: Events leading to the 2021 Withdrawal of ISO/IEC 17025:2017 Accreditation. SNA reached the same conclusion as outlined in the *Final Report of Review and Audit of Selected Casework of the Firearms Examination Unit of the Forensic Science Laboratory Division, Department of Forensic Sciences, District of Columbia March 18, 2021,* regarding the erroneous DFS reported results and agrees that the USAO's independent examiner reached the correct results. SNA drew five conclusions from the review of the case and associated documents.

Conclusion 1: There was a technical error caused by the inability of the DFS Forensic Scientists[14] to make a correct elimination.

Conclusion 2: There was an administrative error caused by the inclusion of an incorrect photograph in the case file.

Conclusion 3: There was a technical error on the part of the FSL/FEU Intermediate Leadership caused by the improper use of the inconclusive opinion.

[12] Thomas F. Gilbert, Human Competence: Engineering Worthy Performance (New York: McGraw-Hill, 1978)
[13] The USAO Firearms Review and Audit Team consisted of Bruce Budowle, James Carroll and Todd Weller.
[14] The DFS uses the term Forensic Scientist in job descriptions and also uses the term Firearms Examiner (e.g., in the FEU Training Manual Document Control Number 2031 Revision 6).

Conclusion 4: Executive Leadership was ineffective[15] in creating a culture that encouraged feedback from staff and fully investigated customer complaints.

Conclusion 5: The DFS did not have an effective quality management system.

Each conclusion is discussed below. A detailed assessment of the FEU is discussed in Section 4.4 Firearms Examination Unit (FEU).

2.1 Conclusion 1: DFS Forensic Scientists were Unable to Correctly Make an Elimination

The primary premise in firearm identification is that a particular firearm will transfer reproducible markings to a bullet, cartridge case, or other ammunition component, and different firearms will produce different markings. The secondary premise is that trained examiners can reliably discern differences and similarities and render accurate common source determinations. In general, an examiner can reach three conclusions from a comparison:

- *Identification* – an opinion that two ammunition components were fired in or from[16] the same firearm;
- *Elimination* – an opinion that two ammunition components were fired in or from different firearms; and
- *Inconclusive*[17] – an opinion that there is insufficient detail within the compared marks to support either identification or elimination.

To conclude an identification, class characteristics must agree, and there must be sufficient correspondence of individual characteristics. Class characteristics are measurable features of a specimen that indicate a restricted group source and result from design factors and are determined prior to manufacture.[18] Individual characteristics are marks produced by the random imperfections or irregularities of tool surfaces. These random imperfections or irregularities are produced incidentally to manufacture and/or caused by use, corrosion, or damage. They are unique to that tool to the practical exclusion of all other tools.[19] To conclude an elimination, there must either be disagreement in class characteristics or sufficient disagreement in individual characteristics. In the McLeod case, SNA SME review of the materials determined clear class characteristic differences between the two cartridge cases. Specifically, the breech face impressions of the two cartridge cases, which are caused by the head of the cartridge case pressing against the breech face of the firearm during firing, were significantly and sufficiently different and supported a conclusion of elimination. This

[15] SNA uses the term ineffective throughout this report to describe something or someone that does not succeed at accomplishing the intended task, outcome or goal.
[16] A cartridge case is fired in a firearm while a bullet is fired from a firearm.
[17] It cannot be identified, nor can it be excluded; there is insufficient data for either of the other two conclusions.
[18] AFTE Glossary, 6th ed., 2013, Version 6.030317.
[19] Ibid.

opinion is shared by the USAO Firearms Review and Audit Team and discussed in their findings and conclusions.[20]

The incorrect conclusion of identification rendered by some DFS examiners is so disparate from the correct conclusion of elimination that it represents a significant issue relating to the competence of those examiners. In other words, the identification criteria of the examiners were not sufficiently rigorous to distinguish between coincidental correspondence of striated marks produced by different firearms and correspondence due to being fired from or in the same firearm.

2.2 Conclusion 2: DFS Examiner Made an Administrative Error with the Inclusion of an Incorrect Photograph in the Case File

A mislabeled comparison photograph was inserted into the case jacket during the NIBIN lead confirmation process. This photograph represented evidence from a different, unrelated case. The photograph was mislabeled and mistakenly inserted into the McLeod case jacket.

The DFS' process for NIBIN lead confirmations was intentionally streamlined since the purpose of NIBIN is to provide investigative leads (as opposed to a thorough microscopic comparison examination of all cartridge cases, projectiles, and test fires from associated weapons if available). The process consisted of a microscopic comparison of only the two cartridge cases associated with that lead. The process did not require that any other evidence associated with the cases needed to be examined. Other streamlining measures included:

- No requirement for completing worksheets for the individual cartridge cases;
- No requirement for taking overall photographs of the individual cartridge cases; and
- No requirement for documenting anything other than the brief documentation associated with the comparison of the two cartridge cases.

Thus, the documentation for a NIBIN lead consisted of a photograph demonstrating the observed correspondence, a statement regarding the conclusion, and the firearm-produced marks supporting that conclusion.

While other laboratories have successfully streamlined their processes for confirming NIBIN leads, the FEU had insufficient protocols for ensuring mistakes were minimized in their streamlined process. The inability to automatically label photographs contributed to the error in this case. It is likely that the administrative error would have been discovered

[20] Final Report of Review and Audit of Selected Casework of the Firearms Examination Unit of the Forensic Science Laboratory Division, Department of Forensic Sciences, District of Columbia March 18, 2021, Section III - Detailed Analysis and Conclusions.

had the laboratory review processes in place to examine NIBIN lead confirmations been effective, rather than the ineffective streamlining of the process adopted by the FEU.[21]

2.3 Conclusion 3: The FSL/FEU Intermediate Leadership Made a Technical Error in the Improper Use of the Inconclusive Opinion

One of the conclusions an examiner may reach when comparing two fired ammunition components is "inconclusive." This conclusion is applicable when class characteristics agree, but there is neither support for identification nor elimination due to insufficiency in the compared marks. Based on a review of the records, five DFS examiners concluded identification while two DFS examiners concluded an "elimination." The final opinion adopted by FEU Intermediate Leadership determined that the conclusion would be inconclusive.

Interviews identified several reasons for the decision by the FEU Intermediate Leadership to call the conclusion inconclusive. The first was that the inconclusive opinion served as a middle ground considering some examiners concluded identification while others concluded elimination; i.e., the inconclusive was neither right nor wrong. Another reason was that the firearm was not available for examination; therefore, no examiner could determine if the class characteristic differences were due to differences in ammunition or shot-to-shot differences in the movement of the breech face against the cartridge case. While these reasons reportedly used by management to render a conclusion inconclusive have been used by firearms examiners in other cases, in the McLeod case they were not properly applied based on the evidence.[22]

An inconclusive opinion does not or cannot serve as the middle ground between an identification and an elimination. An examiner renders an inconclusive opinion when the class characteristics are similar between two toolmarks (cartridge cases), and there is insufficient data to support either a conclusion of identification or elimination. With seven different examiners completing examinations/verifications and making definitive conclusions, there was sufficient data upon which to base conclusions.

- An inconclusive opinion may only be potentially warranted when class characteristics between the two items are similar. In this case, the class characteristics of the breech face were different. Furthermore, they were impressed marks, showing no movement of the primer against the breech face of the firearm. In addition, because they were clearly impressed, the differences in class characteristics could not be due to ammunition differences.

[21] FEU subsequently implemented corrections to these processes, ensuring that these examinations are treated as other comparisons, including required worksheets for individual cartridge cases, overall photographs, and complete documentation of the examinations performed.
[22] AFTE Criteria for Identification Committee, 1992. Theory of identification, range of striae comparison reports and modified glossary definitions. AFTE Journal 24(3):336-340.

- An inconclusive opinion is supposed to be a data-driven decision. SNA concurs with the USAO Firearms Review and Audit Team's assessment in that it appears the decision of inconclusive was not a data-driven one, but a mandate designed to bridge the gap between the disparate conclusions of identification and elimination reached by their own examiners.

2.4 Conclusion 4: DFS Work Environment Did Not Foster a Culture of Open Dialogue and Debate

In the Final Report of Review and Audit of Selected Casework of the Firearms Examination Unit of the Forensic Science Laboratory, Division, Department of Forensic Sciences (Final Report),[23] the USAO Firearms Review and Audit Team found that DFS management compounded the erroneous identification by applying undue influence upon the firearms examiners. Mandating examiners change their opinion to inconclusive was not supported by the proper evidentiary analysis. This is a major nonconformance to the first requirement of ISO/IEC-17025:2017, Impartiality (Sections 4.1.3 and 4.1.4). DFS provided the erroneous inconclusive opinion to the SAB and ANAB. This was reportedly the case when FEU Examiner Michael Mulderig was asked to re-examine the evidence and when he concluded that the two cartridge cases were an identification. Michael Mulderig was then reportedly told by FEU Manager Jonathan Pope to change his conclusion to an inconclusive. The audit team report further stated that the lack of acknowledgment on the part of DFS of the technical error and then the mishandling of the complaint was more troubling. SNA structured interviews with employees and members of the SAB confirmed a work environment that did not foster a culture of open dialogue and debate.

2.5 Conclusion 5: The DFS Did not have an Effective Quality Management System

The DFS Quality Unit's primary responsibility is to ensure that the laboratory operates in accordance with the DFS Quality Assurance Manual (QAM), the ISO/IEC 17025:2017 Standard and the associated ANAB AR 3125 requirements assessing the effectiveness of the forensic operations and correcting gaps in procedures. The FEU examiners were not able to properly conduct comparisons, and incorrect information was provided to the ANAB. See Section 4.1.9 Quality Management, for a discussion of the DFS Quality Unit.

3 Root Causes and Missed Opportunities

The SNA team conducted a root cause analysis of the withdrawal of accreditation and identified potential gaps that need to be addressed to achieve accreditation. While SNA

[23] Budowle, B., Carroll, J., and Weller, T. (2021) Final Report of Review and Audit of Selected Casework of the Firearms Examination Unit of the Forensic Science Laboratory, Division, Department of Forensic Sciences. Internal USAO Report.

attempted to relate its findings to the ISO/IEC 17025:2017 Standard where possible, many findings are related to areas not normally examined in a routine ISO/IEC 17025:2017 forensic assessment, including conflict resolution in management practices and developing an effective work culture. DFS documentation appeared to operate in accordance with ANAB ISO/IEC 17025:2017 and, on the surface, gave the appearance that operations were in compliance with accreditation standards.

3.1 Root Causes

The ANAB withdrawal of accreditation in 2021 cannot be attributed to a singular reason, and the corresponding events leading to the withdrawal of accreditation had been developing for some time. While both Dr. Houck and Dr. Smith attempted to affect positive change, overarching problems stemming from the following macro root causes remained present in the DFS:

- Absence of clear, relevant, descriptive expectations regarding customer service. Executive Leadership did not appear to adequately prioritize customer service as an essential part of the DFS core mission.
- Inconsistent demonstration of the Executive Leadership temperament required to navigate complex relationships and issues with customers to achieve positive, mutually beneficial outcomes.
- Executive Leadership did not establish the required levels of oversight and accountability for the forensic operations to maintain standards and expected performance levels.
- Executive Leadership may have misinterpreted the concept of laboratory independence and therefore did not properly maintain required levels of accountability to their customers.
- Executive Leadership was not able to create an environment where they and the staff consistently demonstrated skills in conflict resolution within the laboratory and externally with customers.
- As a result of the segmented organizational structure of the DFS, forensic operations were not organized in a manner that promoted a collaborative, integrated work environment.
- There was an absence of foundational documents that characterize the organization's desired cultural atmosphere, operational focus, and role in the justice ecosystem.
- Executive Leadership did not consistently display the capacity to properly recruit, select, match, and train employees to meet workplace requirements.
- Executive Leadership did not create and facilitate an open and constructive environment in order to foster a culture of open dialogue and healthy debate.
- Executive Leadership did not effectively align resources against current and emergent mission priorities.

3.2 Missed Opportunities for Improvement

SNA's review focused on the time period between 2015 and May 2, 2021. However, interviews of individuals employed at the DFS before 2015 offered relevant insight into root causes and missed opportunities for improvement. SNA obtained additional information by reviewing annual reports produced by the DFS Director and requested and received information from DFS vendors.

The documentation and supporting opinions of longtime employees indicated an emphasis on constructing and equipping the new facility. There is less documentation regarding how DFS management planned to address actual operations and staffing. As cited in Appendix D, many MPD staff were "grandfathered" into the DFS without formally vetting their prior training, competency, or proficiency.

There were at least two missed opportunities for the DFS to improve overall operations. In 2012, before the merger of MPD Forensic Laboratory into DFS, Karen Wiggins, then the Executive Director of the MPD Firearms & Latent Print Division, worked with Ron Smith and Associates (RS&A) to assess the skills of 11 examiners[24] prior to transitioning them into the DFS. On November 28, 2012, RS&A reported the Latent Print Examiner skill assessment testing results to Karen Wiggins, who was then the Acting Deputy Director of Quality for the DFS.[25] RS&A reported that only two of the eleven participants passed the skills assessment tests. RS&A also provided explanations of the impact that the lack of skills has on forensic testing. SNA was not able to identify any corrective action taken by DFS in response to the RS&A evaluation letter.

A second missed opportunity occurred in 2015 following the suspension of the FBU DNA operations. The nine nonconformances in the ANAB surveillance report[26] were addressed in three Quality Corrective Action Reports (Q-CARs) that listed macro root cause effects within the FBU, but the investigation did not extend outside of the FBU for root causes related to DFS management.[27] Had the assessment been broader in scope and involved outside experts in the other disciplines, some of the training and quality issues that existed in other forensic disciplines might have been uncovered earlier.

4 Review Details by Function

4.1 Management of Forensic Operations

SNA assessed the DFS forensic science practices and found the following overarching issues that span the forensic operations at the DFS.

[24] The examiners were not identified by name and therefore were anonymous to RS&A.
[25] November 28, 2012 letter from Ron Smith to Karen Wiggins Re: Latent Print Examiner Testing. SNA obtained this letter from RS&A. There was no evidence that this letter was maintained at the DFS.
[26] See ANAB DC Department of Forensic Sciences, Surveillance and Remote Surveillance Audit, April 24, 2015.
[27] See Q-CAR-15-011-DFS_FSL_FBU, Q-CAR-15-014-DFS_FSL_FBU, and Q-CAR-15-015-DFS_FSL_FBU.

4.1.1 Legislation

The DFS legislation set forth in D.C. Code § 5-1501.10 - §5-1501.14 is intended to provide guidance and oversight for a forensic operation that provides accurate, reliable, and impartial scientific testing results for the citizens of the District. SNA reviewed the current legislation and considered scenarios in which the legislation could possibly be amended to enhance the DFS forensic operations. While the time frame allotted for this review did not allow for more exhaustive research, SNA SMEs compared the DFS legislation to other similar legislation in the United States, where commissions, boards, or oversight bodies are used to provide guidance to forensic operations. Please review Appendix F: Information on Supporting Advisory Bodies Currently in the US, which lists entities that oversee forensic laboratories. It is recommended that a committee composed of individuals from the Stakeholder Council review these entities for oversight effectiveness and best practices for consideration or use in the District.

Recommendation 1: Update DFS Establishment Act of 2011

Establish a committee to evaluate and update the DFS Establishment Act of 2011. At a minimum, the committee should include members of the Stakeholder Council or their designees and include an individual(s) familiar with drafting legislation.

According to the DC DFS legislation, the SAB is mandated to include nine voting members, consisting of:

- Five scientists experienced in scientific research and methodology and published in peer-reviewed journals, including
  - One statistician, and
  - One with expertise in quality assurance, and
- Four forensic scientists.

None of the nine voting members can be DFS employees or an employee of a law enforcement laboratory or agency that provides forensic science services to DC. The SAB is scheduled to meet quarterly and is charged to:

- Review all reports of allegations of negligence, misconduct, or errors occurring in the forensic science and public health laboratories at the DFS.
- Periodically review DFS operation protocols.
- Once every three years, conduct a review of scientific literature for suggested improvement to DFS procedures.
- Make recommendations to the Director regarding:
  - Quality and timeliness of forensic science and public health services.
  - New technologies.
  - Plans for implementing new and sustaining existing programs or eliminating programs.

  - Qualifications for analysts' positions.
  - Matters regarding the scientific operation of the DFS.
- Advise the Mayor and Stakeholder Council, when appropriate, on matters of forensic science.

Historically, it appears the DFS typically set the agenda and led the SAB meetings. For the last several years, the meetings led by the DFS Director consisted largely of public relations-style slideshows prepared by the DFS to showcase accomplishments. While complaints or other issues were included, they appeared to be provided as an informational summary of how these complaints and issues were addressed. SNA learned through the SAB and Stakeholder Council interviews that this approach did not encourage or facilitate the SAB and Stakeholder Council members to provide impactful input. For example, in discussions regarding the outcome of Quality Corrective Action Reports (Q-CARs), the SAB often did not have access to the underlying case data and other documentation associated with the Q-CARs. The SAB asked several times for supporting documentation (e.g., case files and records) but were denied access to the records.[28] The term "Paper Tiger" was used in an interview to describe the SAB's oversight of DFS operations.[29] SNA concludes that the DFS practice of providing the SAB with summaries of events hampered the SAB's ability to provide timely and constructive input on forensic science operations and complaints. The DFS reported to the SAB on how the Q-CARs were resolved but typically did not engage them early in the process or provide the underpinning documents that would enable the SAB to conduct thorough evaluations of the laboratory's Q-CARs for accuracy and corrective actions for adequacy. SNA believes this impeded the forensic experts on the SAB from applying their expertise to resolve chronic problems properly. In November of 2020, the SAB sent a recommendation to Dr. Roger Mitchell, Interim Deputy Mayor for Public Safety and Justice, requesting the USAO documents concerning the investigation of the FEU. The SAB never received any case file information regarding the FEU's misidentifications, and therefore, could not assist in developing a timely and correct resolution of the original case that initiated the USAO investigation.[30]

While the SAB's role was to review reports of allegations of misconduct or errors, SNA could not identify any formal mechanism documented for the SAB to receive, review and appropriately investigate and respond to complaints. Section 11 of the legislation does not specify who receives or reports allegations to the SAB, just that they are to be reported immediately to the Board and investigated promptly by the Director. According to Section 11, (b)(1), the Director determines whether an allegation is credible. SNA

[28] Structured Interview with Pete Marone, SAB Chairman.
[29] One that is outwardly powerful or dangerous but inwardly weak or ineffectual - https://www.merriam-webster.com/dictionary/paper%20tiger (accessed 11/27/2021).
[30] Structured Interview with Pete Marone, SAB Chairman.

recommends that the determination of whether an allegation is credible or not should be the responsibility of the SAB in conjunction with the Director.

Recommendation 2: SAB and Complaints

Update the DFS Establishment Act of 2011 to provide the SAB with the legislative authority, budget, and responsibility to determine whether allegations and complaints about DFS are credible and require further investigation.

The effectiveness of the SAB has been limited by the lack of clear authority to implement change at the DFS. The lack of SAB authority to recommend, accept, or reject changes in the DFS Quality Management System (QMS) and SOPs was an identified concern of SAB members interviewed. During one structured interview, a SAB Member reported that Dr. Smith told them that management concerns were not in the SAB lines of authority. While the DFS has implemented suggestions from the SAB, the DFS ignored recommendations that would have improved DFS operations in some circumstances. For example, SAB member Mr. John Paul Jones II made a recommendation for the FEU to better define the criteria used for identification in FEU02 - The Examination of Ammunition and Ammunition Components, specifically detailing the criteria needed to conclude identification or elimination.[31] FEU responded by saying that the DFS criteria are based on the Association of Firearm and Tool Mark Examiners (AFTE) Theory of Identification and were covered in the training manual. Essentially, the FEU positioned that FEU02 was sufficient, which is not correct. SNA concludes that because of the absence of clear authorities for accountability, no additional action was taken.

The DFS legislation set forth in D.C. Code § 5-1501.10 - §5-1501.14 does not provide detailed qualification requirements for the SAB members. The legislation also stresses the incorporation of researchers. Forensic laboratories are not research facilities; rather, they are operational organizations that apply validated forensic science best practices to criminal evidence. SNA recommends that the SAB should be well represented with experienced forensic and health laboratory practitioners that understand the details of forensic laboratory operations (e.g., validation studies, competency testing, proficiency testing, accreditation requirements, courtroom testimony, responding to customer complaints).

Recommendation 3: SAB Members

Update the DFS Establishment Act of 2011 to require SAB members to be experienced forensic and health laboratory practitioners who understand the details of forensic operations (e.g., validation studies, competency testing, proficiency testing, accreditation requirements, courtroom testimony, responding to customer complaints).

[31] Scientific Advisory Board Meeting, April 17, 2020.

SNA recommends that the Department of Forensic Sciences Establishment Act of 2011 be amended to call for two separate SABs: a Forensic Science Advisory Board (FSAB) and a Public Health Science Advisory Board (PHSAB), with separate membership and separate quarterly meetings. A provision in the legislation for two individual Boards would enable the inclusion of more forensic practitioners in each of the specialization areas of the FSL and oversight focused specifically on the operations of the FSL. A designated member(s) of each Board could attend both meetings and ensure there is an appropriate collaboration between the two Boards. Each of the two SABs should be granted the authority and budget to undertake investigations as warranted. Additionally, the meetings should be coordinated by an individual independent of the DFS management. See Section 4.1.7 Independence and Customer Service for a discussion of the recommended Forensic Ombudsman position.

Recommendation 4: Create Two Separate SABs

Update the DFS Establishment Act of 2011 to have two separate SABs: a Forensic Science Advisory Board (FSAB) and a Public Health Science Advisory Board (PHSAB), with separate membership and separate quarterly meetings.

SNA observed that the absence of formal policies and procedures for communication between the SAB, Stakeholder Council, and the DFS undermined the effectiveness and intent of the legislation. Because there is no SAB representation on the Stakeholder Council, there is minimal opportunity for the SAB members to obtain first-hand knowledge of customer complaints. The Stakeholder Council consists of eleven members, including the DC Deputy Mayor for Public Safety and Justice, Chief of the MPD, Chief Medical Examiner, Attorney General, US Attorney for DC, Director of Public Defender Service for DC (PDS), Federal Public Defender for DC, Director of Public Health, Chief of Fire and Emergency Medical Services, Director of the DFS, and the head of any other government agency utilizing forensic services of the DFS. The main duties of the Stakeholder Council are to:

- Meet no less than twice per year.
- Provide feedback to the Mayor on the timeliness of services delivered.
- Provide feedback to the Mayor on the effectiveness of the agency's support of their mission.
- Advise the Mayor and Council on matters relating to the DFS or forensic science.

Like the SAB meetings, the Stakeholder Council meetings appeared to be largely limited to slideshows by the DFS Director. Through our structured interviews with SAB and Stakeholder Council members, SNA observed that this one-way communication was reported to have been frustrating and ineffective.

The legislation also provides for the qualifications and job duties for the DFS Director and the qualifications for the Deputy Director. However, SNA did not find the legislative

requirements and duties of the DFS Director to be best suited as written for running the DFS. SNA discusses the recommended changes to streamline and consolidate the forensic laboratory management structure, including the job description of the DFS Director and a replacement position for the Deputy Director in Section 4.1.2 Executive Leadership.

The legislation describes documents required for disclosure; however, the list may not be comprehensive. For example, the legislation does not require the disclosure of an examiner's training records.

Recommendation 5: Required Disclosure Documents

Collaborate with USAO, OAG-DC, and Defense Organizations to identify all documents required for disclosure and update the DFS Establishment Act of 2011 to include the comprehensive list of documents.

Currently, the support for the SAB and Stakeholder Council is provided by the DFS. Having an independent agency support the operations of the SAB and Stakeholder Council will help to ensure impartiality and oversight.

Recommendation 6: SAB and Stakeholder Council Staffing

Provide the committee evaluating and updating the DFS Establishment Act with authority to determine the best staffing approach to manage and support the SABs and Stakeholder Council functions.

See Appendix G: Recommendations for Enhancing the DFS Legislation for a summary of recommended updates to the DFS Establishment Act of 2011.

4.1.2 Executive Leadership

During Dr. Smith's confirmation hearing in October of 2015, she described her goals for the DFS as outlined in Figure 1. SNA's assessment found that the DFS did not achieve a majority of these goals.[32] Upon review of DFS documentation, it appears that the prevailing DFS Laboratory operating model focuses on process-related matters and work-tasking throughput rather than the development of a culture of performance and accountability for sustained excellence. This conclusion is based on a review of metrics provided in the Annual Management Report (2020)[33] and the DFS Quality Review – FEU Case (6 May 2020).[34] SNA was not able to locate any founding documents describing

[32] The DFS did remain independent to a fault. The goal of being independent prevented them from reaching the other goals. See Section 4.1.7 Independence and Customer Service.
[33] 2020 FSL Annual Management Review Report from Dr. Stephen Mulligan, DFS Quality Assurance Specialist; Lyndon Watkins, Sr. To Dr. Jenifer Smith, DFS Director; Abdel Maliky DFS Senior Deputy Director; Wayne Arendse, FSL Director; Dr. Anthony Tran, PHL Director.
[34] 6 May 2020 letter to Anna T. Yoder, Compliance Investigator ANSI National Accreditation Board from Wayne E. Arendse, Director Forensic Science Laboratory (FSL) Division, Department of Forensic Sciences.

goals for the DFS culture. From this review, the Executive Leadership appeared more focused on production factors and timeline metrics rather than creating a balance between throughput, skilled execution, and sustained quality of the work product. While these factors can be valuable parameters in assessing quantitative organizational performance, there is no mention of how laboratory staff members were trained and mentored into building a laboratory culture of personal traits that include self-assessment, self-auditing, and self-correction. These traits should be considered as equally important to technical skills when completing the complicated scientific tasks that support the justice system. In addition, SNA did not encounter any evidence that could characterize laboratory prioritization of forming a workplace culture of valuing performance-based integrity over simple production and compliance.

Figure 1: Dr. Smith's goals for DFS

At Dr. Smith's confirmation hearing, she outlined her goals for the DFS:

- Be independent but not isolated from critical customers.
- Have foresight with insight formed by hindsight concerning both productivity and quality.
- Deliver exceptional forensic science to inform public safety and health decision making.
- Have fiscally responsible leaders who engage, empower and inspire using best management practices.
- Provide superior training, infrastructure, tools and resources to ensure all employees successfully accomplish the DFS Mission.
- Maintain a diverse workforce; collegially blending youthful enthusiasm with experiential wisdom.

Timely communication between all Forensic Units is essential for multi-discipline case analyses (e.g., blood, cellphones, and fingerprints); however, within the DFS, interviews with staff indicated that communication across the laboratory varied in frequency and focus. As such, it is recommended that the DFS leadership hold periodic staff meetings in order to provide accurate information to laboratory staff and management personnel. Forensic laboratory activities support the criminal justice system and significantly impact the public's trust in justice institutions while affecting the rights of community members. SNA recommends establishing a communication plan for regular staff meetings and communication of operational, administrative, and business information. The topics listed in ISO/IEC 17025:2017 clause 8.9 - Management Reviews can serve as the agenda for all DFS Executive Leadership and Intermediate Leadership monthly management meetings. See Appendix H: Sample Monthly Management Meeting Agenda. A clearly defined agenda used by Executive Leadership and Intermediate Leadership should facilitate a constancy of purpose across all laboratory units and for all customers.

Recommendation 7: Standardize and Share Management Meeting Agendas

Use ISO/IEC 17025:2017 Annual Management Review topics for monthly management meeting agendas across all units to develop constancy of purpose and structure communication with customers facilitated by a Laboratory Information Management System (LIMS) dashboard and secure website portal.

Resource management is one primary responsibility of forensic executives. Available resources and demand for services must be continually aligned to optimize support for the criminal justice system. Resource allocation decisions often create conflict among stakeholders. SNA could not identify any documented processes for communicating resource-related decisions to laboratory staff and customers, nor was there any evidence for formal conflict resolution methods.

Recommendation 8: Management Training for Conflict Resolution

Require management training for conflict resolution, communication, operations management, and customer service.

The Executive Leadership nonconformance findings to ANAB ISO/IEC 17025:2017 were related to:

- Policies and objectives (ISO/IEC 17025 - 8.2.1, 8.2.2, 8.2.3)
- Risks and opportunities (ISO/IEC 17025 - 8.5, 8.5.1, 8.5.2, 8.5.3)
- Internal audits (ISO/IEC 17025 - 8.8, 8.8.2)
- Management review (ISO/IEC 17025 - 8.9.2)

See Appendix I: Executive Leadership Nonconformance with ISO/IEC 17025 Forensic Laboratory Accreditation Requirements.

4.1.3 DFS Leadership Organization

The DC Government is unique as it must operate similarly to a state while also performing functions of a city and a county. SNA research indicates that the DFS may be best served by a DFS Executive Director with comprehensive DC government management experience that includes complex staff that is diverse in roles, experience sets, and skill levels; and overseeing the administrative/business factors necessary to lead a medium to large organization. Neither of the past two DFS directors had this type of management experience. As outlined in Section 4.1.1 Legislation, SNA recommends redefining DFS Executive Director qualifications in Sec. 4 of the D.C. Code § 5-1501.10 - §5-1501.14 to:

- Broaden the educational requirements by allowing an advanced degree in science, law, or business.
- Require demonstrated management and administrative experience specifically in the public sector and preferably in the DC government sector, including effectively

managing multiple stakeholders with competing interests, facilitating clear and accurate communication across all stakeholder groups, and proven conflict resolution skills.

- Require demonstrated experience supervising organizations with more than 75 employees. The duties of the DFS Executive Director should include timely and specific reporting to the SAB on tracking of nonconformances, corrective actions, and complaints and providing documentation and information as requested.

Recommendation 9: Redefine DFS Director Qualifications

Redefine the DFS Director qualifications in Sec. 4 of the D.C. Code § 5-1501.10 - §5-1501.14 to:

- Broaden the educational requirements by allowing an advanced degree in science, law, or business.
- Specify past experience requirements by requiring demonstrated management and administrative skills specifically in the public, private, or government sectors and preferably in the DC government.
- Require demonstrated experience supervising relevant public, private, or government organizations with agency employees, preferably agencies with more than 75 employees.

In addition to hiring an Executive Director who can address overall management and governance issues, DFS should hire a Chief Forensic Science Officer with experience in forensic laboratory operations. The Chief Forensic Science Officer can ensure the Forensic Operations meet all accreditation standards and incorporate best practices from the forensic community. The Chief Forensic Science Officer would replace the Deputy Director and the Senior Deputy Director and be responsible for ensuring the required levels of oversight and accountability for the forensic operations. This position should require a Master's or Doctoral degree in an applicable area of science or forensic analysis, a minimum of ten years working in a forensic laboratory, and five years of experience directing forensic laboratories.

Recommendation 10: Redefine the Deputy Director and Senior Deputy Director Positions to create a Chief Forensic Science Officer Position

Eliminate the Senior Deputy Director position and redefine the Deputy Director qualifications in Sec. 4 of the D.C. Code § 5-1501.10 - §5-1501.14 to:

- Master's or Doctoral degree in an applicable area of science or forensic analysis
- Minimum of ten years working in a forensic laboratory
- Minimum of five years' experience directing forensic laboratories
- Include the responsibility for ensuring the required levels of oversight and accountability for the forensic operations.

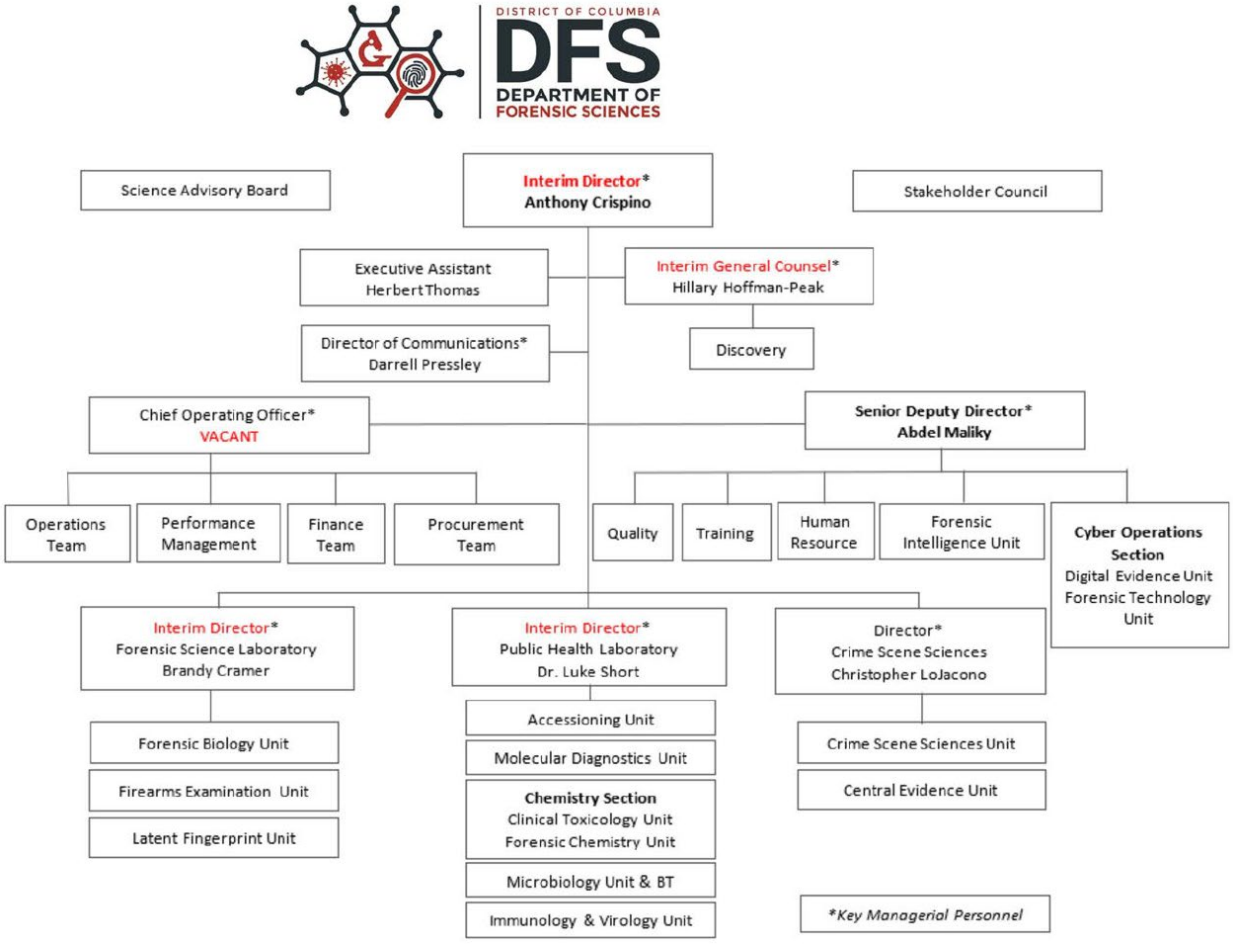
SNA research and analyses did not identify sufficient unity of scientific command in how laboratory operations were led and administered. For example, SNA identified four command-level relationships in the DFS that currently monitor seven Forensic Units:

- FSL is responsible for FBU, FEU, and LFU.
- Public Health Laboratory Division (PHL) is responsible for the FCU.
- Cyber Operations Section is responsible for the DEU.
- Crime Scene Sciences Division (CSS) is responsible for the Crime Scene Sciences Unit (CSSU) and the Central Evidence Unit (CEU).

In addition, SNA was unable to identify dedicated policies and procedures for managing multi-component casework analyses.

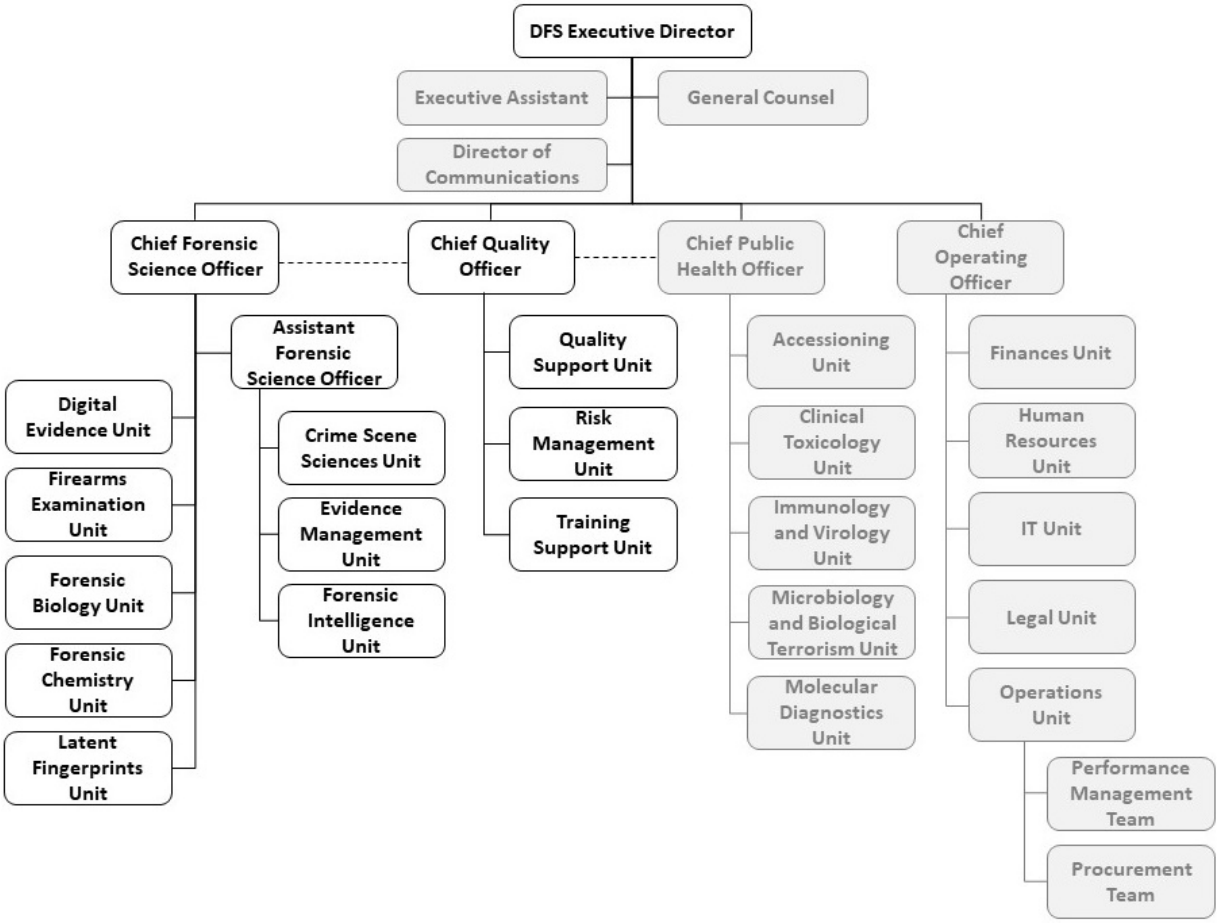
Figure 2: DFS Organizational Chart as of 7/28/2021 illustrates how the existing DFS units relate to one another.

Figure 2: DFS Organizational Chart as of 7/28/2021



One reason the Quality Unit was ineffective is that it lacked direct engagement with the DFS Director. The Quality Unit Manager reported to the Senior Deputy Director and did not regularly attend Forensic Unit meetings. Moving the Quality Unit under the DFS Executive Director creates a direct line of communication and enables the Executive Director to have full visibility into quality matters, high-risk corrective actions, root causes, follow-up, and monitoring. The DFS Executive Director needs to receive unfiltered quality-related information from the Chief Quality Officer.[35] The Chief Quality Officer will also report directly to the Chief Forensic Science Officer, and vice-versa regarding quality matters, as indicated by the dotted line in the proposed DFS organizational design shown in Figure 3: SNA Proposed Organizational Chart, below.

Figure 3: SNA Proposed DFS Organizational Chart



The new organizational design places all five Forensic Units (DEU, FBU, FCU, FEU, LFU) under the command of one Chief Forensic Science Officer role, with the three supporting Forensic Units (CSSU, CEU, FIU) reporting to an Assistant Forensic Science Officer. The Chief Forensic Science Officer, Chief Quality Officer, Chief Public Health Officer, and Chief

[35] See Recommendation 12: Codify the DFS Mission Focus, Vision, Cultural Values, Beliefs and Quality Governance.

Operating Officer report directly to the DFS Executive Director. The Finance, Human Resources, Information Technology (IT), Legal, and Operations units report to the Chief Operating Officer. The New Quality Support, Training, and Risk Management Units should be actively engaged in the operations of all Forensic Units forming Quality Improvement Teams with the Forensic Scientist Technical Leader[36] for each Forensic Unit.

Recommendation 11: Restructure the DFS Organization

Restructure DFS so that:

All Forensic Units fall under a unified, accountable chain of command, directly reporting to the new Chief Forensic Science Officer, who, in turn, reports to the DFS Executive Director.

- The Chief Quality Officer, Chief Public Health Officer, and the Chief Operating Officer also report directly to the DFS Executive Director.
- The Finance, Legal, Human Resources, Information Technology (IT), Legal, and Operations units report to the Chief Operating Officer.

The new leadership must create an environment within the DFS where there are clear, relevant, and descriptive expectations regarding customer service, performance, oversight, accountability, and compliance with forensic standards. These expectations should be documented in foundational documents and adopted by staff. These documents should also incorporate quality governance notification rules for nonconformances and Q-CARs for DFS Executive and Intermediate Leadership and customers that define levels of risk required for notifications. For example, the documentation should dictate how, when and what level of risk for nonconformances and Q-CARs requires notification of the Chief Forensic Science Officer, the Executive Director, the SAB, and the customer.[37] This is a large and critical task and is best accomplished through the support of an external consultant.

Recommendation 12: Codify the DFS Mission Focus, Vision, Cultural Values, Beliefs, and Quality Governance

Codify the DFS mission, vision, cultural values, develop an ethos of customer service and impartiality, and define how the staff communicates and adopts the foundational documents. Incorporate quality governance notification rules for nonconformances and Q-CARs for DFS leadership and customers.

[36] The FBU has two Forensic Scientist Technical Leaders; one responsible for oversight of casework and training, and the primary Forensic Scientist Technical Leader who has full authority over all technical/quality operations within the unit as designated by the FBI QAS.

[37] https://www.pharmamanufacturing.com/articles/2018/beyond-the-reporting-lines-secrets-of-successful-quality-organizations/.

4.1.4 Job Descriptions

SNA discovered a number of job descriptions across the Forensic Operations that contained out-of-date and irrelevant information. For example, the FBU and DEU Forensic Scientist Manager and Lead Forensic Scientist, DEU Forensic Scientist (CS-12), Quality Assurance (QA) Specialist, Laboratory Director, and Forensic Science Laboratory Director Human Resource job descriptions listed outdated accreditation organizations and/or irrelevant requirements. Examples of irrelevant and outdated information included American Society of Crime Laboratory Directors accreditation board (ASCLD/LAB) and Forensic Quality Services (FQS) accreditation and Clinical Laboratory Improvement Amendments (CLIA) standards, which are not relevant to FSL operations.

Recommendation 13: Review and, as needed, Update Job Descriptions

Update job descriptions to remove outdated and irrelevant information and to avoid inconsistencies between hiring prerequisites, staff qualifications, and QAM policies.

4.1.5 Management Training

During interviews with current and former DFS staff members, SNA found that managers received minimal leadership development training[38] and were eager to receive such training so that they could better meet their management and leadership responsibilities. SNA also found that most lead scientists did not receive any management or leadership training. SNA recommends mandatory training programs for DFS managers that include, at a minimum, core skills training and education courses in organizational management, risk analysis, ethics, and ISO/IEC 17025:2017 standards and AR 3125 requirements for accreditation.

Recommendation 14: Training for Managers

Establish mandated training programs for DFS staff and leaders that include, at a minimum, core skills training and education courses in leadership, organizational management, risk analysis, ethics, ISO/IEC 17025 standards and AR 3125 requirements for accreditation.

4.1.6 Staff Training and Continuing Education

The training staff consisted of three individuals, a Supervisory Instructional System Specialist (training manager), a Training Specialist, and an Instructional System Specialist. SNA conducted several interviews with the training staff and assessed

[38] DFS managers attended a workshop entitled, Personality (Myers-Briggs, Center Workforce Development, Washington, DC).

operations within the Training Unit. Several issues were identified during this assessment:

- Training Unit staff would benefit from specialized instruction on how to develop and manage a train-the-trainer program (See Appendix J: Training Courses).
- Training records did not appear to be centrally located. During the site visit, SNA requested training records for staff. The records provided by the Training Unit for some employees in the DEU, FEU, LFU, and Quality Unit were incomplete or not available. The Training Unit explained that some employees kept control of their own training records, and at the time of SNA's request, the records were not available.
- The DFS training program used a DFS forensic examiner mentor training approach.[39] This training approach can be enhanced by ensuring the mentors are training on the most current procedures and by providing the mentors with training on developing lesson plans and learning objectives that coordinate with unit procedures.
- Training took place inside the operational laboratory, which could interfere with casework production.

Recommendation 15: Training

Implement employee training and professional development based on the needs of the laboratory, testing requirements, and standards.

The nonconformance findings to ANAB ISO/IEC 17025:2017 and AR 3125 requirements for training were related to:

- Personnel competency (ISO/IEC 17025 - 6.2.1, 6.2.2, 6.2.3)
- A code of ethics (AR 3125 - 4.1.3.1)

See Appendix K: Training Unit Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements.

Training Unit staff would benefit from training in formal technical writing, which would enhance the Training Unit's ability to write procedural and practical documents on highly technical, complex subject areas that are widely understandable and executable by the staff and leadership.

Recommendation 16: Enhance Technical Writing Skills of Training Unit Staff

Provide Training Unit staff with training in formal technical writing to enhance the Training Unit's ability to write procedural and practical documents covering highly technical, complex subject areas that are widely understandable and executable by the staff and leadership.

[39] On site interviews with Training Unit staff revealed that they provided training for new employees when required.

Training Unit staff as well as mentor trainers within the Forensic Units require specialized training for curriculum development, instructional strategies and methodologies, learning theories and principles as applied to adult training, specifically in technical and scientific training related to forensic science as specified in DFS job descriptions, DFS and FSL policies, and ANAB accreditation requirements.

Recommendation 17: Enhance Instructor and Curricula Development

Develop comprehensive curricula to address the training and professional development needs of DFS technical and managerial staff. Develop a "Train the Trainer" program for the DFS Training Unit staff and mentor trainers within each Forensic Unit.

During the structured interviews, some of the USAO attorneys stated that while some of the DFS staff presented well in court, not all of the DFS staff who testified were well prepared to testify in court as they could not articulate scientific concepts and provide testimony above being a fact witness. Moot Court is the capstone event for the verification of effective testimony for newly trained forensic bench scientists and the validation of new technologies. Basic presentation skills are essential to explain complex scientific concepts to laypersons in the jury.[40] A dedicated training program should also include the ongoing monitoring of courtroom testimony.

Recommendation 18: Courtroom Testimony

Develop a dedicated training and professional development program for courtroom testimony in collaboration with prosecutors and defense attorneys.

Ideally, the DFS laboratory would benefit from a dedicated laboratory for training, equipped with similar make and model instruments used in the operations laboratory. In addition, this laboratory can be used to research and validate new methods and equipment. Training and validation can be problematic when conducted within the operational forensic laboratory. Training samples can cross-contaminate between casework samples. Competition for instrument usage always favors casework analyses delaying training programs, frustrating trainees and trainers. A training laboratory should simulate the operational laboratory with the identical equipment and software needed to perform analyses in accordance with approved procedures. The training laboratory can also serve as a venue to validate new methods, technologies, and instrumentation before implantation in the operational laboratory. Reliance upon the use of casework can be minimized by the design and development of validated training samples that simulate all varieties of evidence. DNA training samples can be developed from a variety of

[40] The moot court program requires a set of case files and associated evidence that simulate a case submission for all appropriate disciplines. Challenging scenarios are embedded in each case to test the trainee under pressure. The entire moot court is recorded for review and assessment by all parties. Prosecutors and the Public Defender also receive the benefit of exposure to forensic science case file documentation.

substrates across sequential dilutions, firearms projectiles, and cartridge casings can be collected from a variety of weapons and characteristics testing training skills.

Recommendation 19: Implement a Training/Validation/Research Laboratory

Design, develop and implement a separate laboratory facility within the DFS facility for training, validation, and research, to mirror forensic discipline technical casework operations and equipment, and provide space and support for equipment and/or protocol validation and research activities.

It is important that all DFS forensic casework examiners have a demonstrated level of competency in performing their duties. SNA's research found that the forensic casework examiners had varying degrees of knowledge, skills, and abilities to evaluate data, draw conclusions, and testify in court. One method by which casework examiners can demonstrate a measured level of knowledge in forensic science and their specific discipline(s) of expertise is through certification. The American Board of Criminalistics (ABC) is composed of regional and national organizations which represent forensic scientists. Certification is a voluntary process[41] of peer review by which a practitioner is recognized as having attained the professional qualifications necessary to practice in one or more disciplines of criminalistics. The ABC offers certifications in molecular biology, drug chemistry, fire debris analysis, hair and fiber, paint and polymer, and comprehensive criminalistics. ABC is a certification body accredited by the Forensic Specialties Accreditation Board and is currently working towards ISO/IEC 17024 accreditation. The International Association of Identification (IAI) provides a program for latent print examiners to become certified. An IAI-certified latent print examiner will officially demonstrate knowledge and understanding of friction skin physiology and morphology, terminology, detection, recovery, photography, preservation, enhancement, analysis, comparison, documentation, and reporting of latent print evidence. Starting in 2019, the State of Texas required forensic analysts to be licensed, which requires certification.

Recommendation 20: Forensic Casework Examiner Certifications

Provide support for all FSL casework examiners to work towards individual certifications in foundational forensic science as appropriate to their specific forensic disciplines. Require commitment to certification as a prerequisite for new hires. DFS should provide financial support for fees, travel, and approve leave, as appropriate, to employees to pursue and/or maintain certification. Evaluate the feasibility of forensic licensure within DC.

[41] The 84th Texas Legislative Session passed SB-1287, which requires forensic analysts to be licensed starting January 1, 2019. See https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=T&app=9&p_dir=F&p_rloc=190980&p_tloc=14940&p_ploc=1&pg=4&p_tac=&ti=37&pt=15&ch=651&rl=207 (accessed 11/27/2021) and https://capitol.texas.gov/tlodocs/84R/billtext/pdf/SB01287F.pdf#navpanes=0 (accessed 11/30/2021).

4.1.7 Independence and Customer Service

Both of the past DFS Directors, Dr. Max Houck, and Dr. Jenifer Smith, highlighted the DFS as an organization that maintains independence.[42, 43, 44] However, based on many of the structured SNA customer interviews, SNA concludes that DFS management may have misapplied the term independent,[45] equating it to dictating their own actions without regard to the needs of their customers; in general, not complying with the ISO/IEC 17025:2017 intent of customer service.

Customer satisfaction is an important aspect of ISO/IEC 17025 accreditation. The term "customer" is used repeatedly in the ISO/IEC 17025:2017 Standard and the AR 3125 supplemental requirements. DFS customers are the agencies that submit evidence and request testing (e.g., MPD, USAO, OAG). The beneficiaries of the DFS' services are the victims of crimes, suspects and defendants (both true perpetrators and those falsely accused), the agencies and offices that represent victims and defendants, and individuals that live or work in DC.[46] The DFS must provide scientifically accurate results to meet the needs of those beneficiaries.

As such, SNA recommends creating an Ombudsman position with the role similar to the Ombudsman position created in the North Carolina State Crime Laboratory following their loss of accreditation to address external and internal concerns regarding policies and procedures, and actions by forensic laboratory employees.[47] The new Ombudsman would be responsible for addressing external and internal concerns regarding DFS policies and procedures as well as actions by DFS employees, and would participate in periodic internal laboratory audits (ISO/IEC 17025: 2017 - 8.8) and management reviews (ISO/IEC 17025: 2017 - 8.9). In addition, the Ombudsman would assist the organization in voluntarily resolving complaints and mediating conflicts. The Ombudsman could work closely with the SAB and provide information on complaints and other issues so that the SAB can provide informed guidance. SNA recommends that during the evaluation and proposed update of the DFS Establishment Act of 2011, a determination be made about the establishment and placement for the Ombudsman role.

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[42] Testimony of Max M. Houck, Ph.D. Director, Department Of Forensic Sciences FY2013-14 Department Of Forensic Sciences Council Performance Oversight Hearing.
[43] https://www.evidencemagazine.com/index.php?option=com_content&task=view&id=1385.
[44] Jenifer Smith, This is What Independence Looks Like, Forensic Science International: Synergy, Volume 3, Supplement 1, 2021, 100189, ISSN 2589-871X, https://doi.org/10.1016/j.fsisyn.2021.100189 (accessed 11/27/2021).
[45] The NAS Report, Strengthening Forensic Science in the United States (National Research Council, 2009) mentions "independent". It references that forensic laboratories should be autonomous within law enforcement agencies. It also quotes that, "The laboratory also would be able to set its own priorities with respect to cases, expenditures, and other important issues." SNA believes that the intent of the NAS authors was to provide an independent environment from controlling law enforcement agencies that may exhibit undue influence upon an examiner to expedite casework at the expense of quality.
[46] Dale, W. M. & Becker, W. S. (2014) Forensic Laboratory Management, Application of Business Principles. Taylor Francis, Chapter 2, page 49 crime costs ($2.9 million for homicide).
[47] https://ncdoj.gov/crime-lab/ombudsman-to-the-crime-lab/ accessed 11/27/2021.

Recommendation 21: Create an Ombudsman Position

Create an Ombudsman role with the responsibility to address external and internal concerns regarding DFS policies and procedures and actions by DFS employees. The Ombudsman would participate in periodic internal laboratory audits (ISO/IEC 17025: 2017 - 8.8) and management reviews (ISO/IEC 17025: 2017 - 8.9). In addition, the Ombudsman would assist the DFS in voluntarily resolving complaints and mediating conflicts.

During structured interviews with the customers, a common theme was the FSL's inability to meet customer needs regarding turnaround time (TAT), testing volumes, and courtroom testimony beyond the immediate facts of the case (e.g., expert testimony in admissibility hearings). Interviewees from the USAO said they did not receive all the services they needed from the DFS, so they contracted with external individuals and laboratories for quality and timely casework analyses and courtroom testimony. ISO/IEC 17025 accreditation demonstrates that a laboratory operates competently and generates valid results, thereby promoting confidence in their work both nationally and around the world.[48] Hence, an essential requirement of the ISO/IEC 17025 Standard is that the laboratory responds appropriately to customer needs.[49] Because the customer interactions were not productive, DFS lacks customer requirements data (e.g., the number of cases/items that need to be tested per year) to accurately calculate the number of staff needed to provide accurate reports in an acceptable TAT (e.g., 30 - 45 days). The DFS' most recent customer surveys did not include their largest client, USAO.

The DFS should actively engage with their customers to understand testing needs and be proactive in trying to ensure their funding and staffing are aligned and sufficient to provide timely and quality services to their customers. DFS should meet regularly with its customers to ensure the testing services they provide meet their customers' requirements for forensic services. The DFS should monitor their performance (TAT and caseload) and ensure they have sufficient staffing to meet customer needs.

Recommendation 22: Ensure Laboratory Resources are Sufficient to Meet Customer Needs

Meet with each customer to define customer requirements and then conduct a needs assessment to determine what resources are needed to provide adequate services. If the budget is not adequate, the DFS must adjust the scope of services or request additional resources required to meet the customers' needs.

[48] https://www.iso.org/ISO-IEC-17025-testing-and-calibration-laboratories.html, accessed 11/27/2021.
[49] ISO/IEC 17025:2017 8.6.2.

4.1.8 Data Management

SNA found that DFS maintained records outside of the indexing in the JusticeTrax LIMS (e.g., in paper format, final reports not indexed in JusticeTrax, spreadsheets, FBU electropherograms, and batch worksheets). Currently, the laboratory has sixteen data repositories that do not automatically share data. One contributing factor for the administrative error associated with the McLeod case was a mislabeled photo. If the laboratory had a LIMS integrated with all other data management systems, it is unlikely that the misidentification of the photo would have occurred. Stakeholder interviews indicated that providing timely discovery materials has been an ongoing challenge, and USAO would like to access discovery information via an online portal. The Interim DFS Director hired a Chief Information Officer in September 2021 and is prioritizing IT enhancements, including document control and improving the LIMS, and developing a discovery portal. Disclosure Note: SNA was competitively awarded a contract in April 2021 to help the DFS upgrade and enhance its LIMS.

Recommendation 23: Continue Improving Data Management

Continue ensuring DFS makes full use of the LIMS, integrates all third-party software and instrumentation, and integrates all repositories to maximize operational efficiency and minimize data loss and data entry errors. In addition, the DFS should create a portal for the USAO to access discovery materials, case statuses, and laboratory performance metrics.

See Appendix L: Data Management System Enhancements for a more detailed discussion on improvements to the data management systems.

4.1.9 Quality Management

Since 2012, DFS Executive Leadership has made several changes to the management and structure of the Quality Unit. However, despite these changes, the DFS' QMS is ineffective, as evidenced by the ANAB ISO/IEC 17025:2017 suspension and withdrawal of accreditation for all five forensic disciplines. SNA identified quality nonconformance to ANAB ISO/IEC 17025:2017 requirements relating to the laboratory management system (ISO/IEC 17025 - 8.1.1, 8.2.3). See Appendix M: Quality Unit Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements.

The QMS is defined as the total system comprising all policies, procedures, instructions, records and data managed by the laboratory with the goal of continual improvement. The QAM describes how all staff, positions, policies, and procedures work together to meet the goals of the laboratory and the requirements of the customer. The Quality Unit's main responsibility is to ensure that the laboratory operates in accordance with the QAM, the ISO/IEC 17025:2017 Standard and the associated ANAB AR 3125 requirements. DFS management, from unit managers to the Director, was responsible for the failure of the

QMS due to a number of factors. SNA found several issues with operations within the Quality Unit and with the Quality Unit's interrelations with the DFS Director and Forensic Units. Issues with the following areas of DFS operations contributed to the ineffective forensic QMS at the DFS: communication, staffing, documentation, and the implementation of effective corrective actions.

4.1.9.1 Quality Corrective Action Reports

The Quality Unit's inability to prevent recurring nonconformances was a consequence of superficial root cause investigations, inaccurate root causes, and inappropriate, thus ineffective, corrective actions. Consequently, this allowed high-risk nonconformances to recur. For example, the seemingly simple yet high-risk procedure of recording the transfer of evidence in the chain of custody (CoC) between authorized persons and places was frequently bypassed by FEU staff. A sample of FEU Q-CARs from 2016 to 2020 identified in each year (Q-CAR 16-008, Q-CAR 17-054, Q-CAR 17-007, Q-CAR 18-013, Q-CAR 19-031, Q-CAR 20-13100) nonconformances in the FEU related to deficiencies in the CoC of evidence within the FEU. The nonconformances were related to incomplete and inaccurate chain of custody records contributed to, in part, by staff non-compliance with DFS policies and procedures defined in DOM10, Procedure for Handling Evidence and Clinical Specimens. Q-CAR 18-013 was initiated because an FEU employee bypassed the quality system procedures and directly notified ANAB of a chain of custody issue, which resulted in ANAB notifying DFS of the nonconformance. Chain of custody errors have serious consequences and can render evidence critical to the just resolution of a criminal case inadmissible.

The Quality Unit's inability to prevent recurring nonconformances lacked coordination with the Training Unit (see Section 4.1.6 Staff Training and Continuing Education). Using the example of the CoC Q-CARs, the corrective action process should have included an assessment of existing policies and procedures to determine whether changes were warranted, whether staff non-compliance with existing policies and procedures was a factor, and if so, why staff were non-compliant. It must be determined whether staff lack of compliance was due to simple oversight, lack of enforcement by management, lack of awareness or understanding of the importance of following laboratory policies and procedures, and/or whether training and/or competency assessment was insufficient. The possibility that management's prioritization of productivity over quality motivated staff to take shortcuts thinking non-compliance with policies and procedures would be tolerated if TAT decreased and casework output increased. Only after the root cause is accurately identified by a thorough investigation can a corrective action that successfully minimizes the risk of recurrence of the nonconformance be implemented. The corrective action process addressing the breach in CoC failed, exemplified by the continued breach of CoC protocol by FEU staff. An accurate root cause, appropriate retraining, and competency assessment, and thorough follow-up to monitor continued competence and

compliance, would have minimized the risk of additional CoC errors. See Section 4.1.13 Chain of Custody.

DOM07 Section 5.4 Part D: Verification requires that corrective action be monitored to ensure the corrective action was effective. This step of the process is recorded on Part D of the Q-CAR supporting documents. SNA found evidence where Q-CARs were closed out prematurely before corrective action was set in place and monitoring for effectiveness was completed. For example, on April 30, 2021, the LFU Forensic Scientist Manager and LFU Forensic Scientist Technical Leader[50] presented the corrective actions associated with Q-CAR-21-18126-FSL-LFU to the SAB. On May 24, 2021, a closeout memorandum was issued for Q-CAR-21-18126-FSL-LFU by the LFU Forensic Scientist Technical Leader. SNA could not find any evidence that the corrective action was monitored for effectiveness. It appeared that the DFS laboratory did not follow its own quality policies.

SNA's nonconformance finding for ANAB ISO/IEC 17025:2017 and AR 3125 requirements was related to non-conforming work and corrective actions (ISO/IEC 17025 - 8.7.1; AR 3125 - 8.7.1.g). See Appendix M: Quality Unit Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements.

The identification of nonconformances and subsequent root cause analyses is one of the most challenging aspects of laboratory management. The confirmation of nonconformance should not be left to the subjective judgment of staff, but rather to each Forensic Unit's Forensic Scientist Technical Leader(s) with training and support from DFS Training and Quality Units and outside quality corrective action experts. The confirmation of a nonconformance should follow clearly written and well-understood procedures. It is important to maintain complete documentation[51] for future reference and for the analysis of trends. All forensic staff should receive training on identifying suspected nonconformances and should be encouraged to report all suspected nonconformances to their unit technical leaders.

Recommendation 24: Identification of Nonconformances and Root Cause Analyses

Provide all DFS staff training on:

- The identification of nonconformances,
- The identification of root causes,
- The importance of complete and through documentation, listing all case numbers where applicable,
- Designing, developing, and executing root cause elimination action plans, and

[50] Title is based on the DC Department of Human Resources Job Description (DC Optional Form 8 signed by Karin Wiggins on December 16, 2016) rather than how the title was denoted on the closeout memo (LFU Technical Lead Scientist).
[51] Q-CARs did not always have complete case numbers which made it difficult to retrospectively identify what cases issues pertained to.

- Effective documentation and follow-up analyses to determine corrective action effectiveness.

The current document retention policy allows for Q-CARs and other documents (e.g., preventative action requests, audit closure memos, proficiency tests, customer surveys, and inquiries) to be destroyed after one accreditation cycle or five years, whichever is longer.[52] SNA recommends that all DFS documents and records be maintained as long as all other records are maintained, according to Section 3.10 of the Policy for Retention of Records Document 204-15. It is important that all laboratory documents and records are available for casework going to trial and through the appeal process. Therefore, DFS should retire documents that are no longer current and create an "archive" for such documents.

Recommendation 25: Document Retention

Maintain all records, including Q-CARs and other quality records, so they are available for casework going to trial and through the appeal process. To this end, DFS should create an archive for retired documents.

The disclosure of names on Q-CARs is a delicate balance between transparency and encouraging employees to report quality issues. When DFS Q-CARs are put out for discovery, the names should be redacted so that employees are not discouraged from continuing to report quality issues. That being said, the laboratory should implement a Brady/Giglio process so that each Q-CAR is evaluated for Brady/Giglio content and so that customers are notified appropriately. See Section 4.1.11 Legal for more information regarding legal issues.

Recommendation 26: Brady/Giglio Requests

Work with the USAO and OAG to identify what information qualifies as discovery under Brady or Giglio and then implement a process to ensure that each Q-CAR is evaluated for Brady/Giglio material and customers are notified as appropriate.

The Quality Unit has recently established an entry portal in the Qualtrax® document control system, which allows all staff to report nonconformances for review by the Quality Unit. The Quality Unit and the Unit Managers then follow the FSL QAM and DOM07 to appropriately categorize the nonconformance as either a one-time event resolved with appropriate remediation, or as a recurrent event requiring a Q-CAR or Quality Preventive Action Reports (Q-PAR). The QA Qualtrax® Portal is new and requires evaluation, but is a step in the right direction to providing timely reporting of nonconformances by all staff. The new Quality Support Unit needs to engage all forensic staff in a culture of continual

[52] According to DOM07 section 6.1, Q-CAR records are generated and retained for at least one accreditation cycle or five years, whichever is longer.

quality improvement by regularly meeting with the Technical Leaders and/or attending unit meetings.

4.1.9.2 Quality Staffing and Support

SNA SMEs interviews with current staff and past employees revealed that the Quality Unit lacked direct engagement with the DFS Director and did not regularly engage with the Forensic Units. SNA heard from several interviewees that the Quality Unit was perceived as intent on finding "gotchas" within the laboratory rather than collaborating with and supporting the forensic operations. This perception most likely occurred because the quality staff did not have experience in forensic operations.

SNA learned that the leadership of the Quality Unit had changed four times since January 2019. The current Interim Supervisory Quality Assurance Specialist and supporting Quality Assurance Specialists, who were interviewed in person while the SNA SMEs were on site at the DFS, expressed the desire to do what is necessary for developing and supporting an effective QMS over the Forensic Units. However, the Quality Unit needs specialists with more expertise in all aspects of forensic quality program management. The curriculum vitae (CVs) of four of the five Quality Unit staff list past training, education, and employment focused on public health-related areas and clinical laboratory QA, with the exception of one specialist who moved into the Quality Unit from the FBU.[53] One CV mentions experience as an auditor/inspector for the College of American Pathologists.[54] None of the CVs indicate specific expertise in forensic laboratory accreditation. Implementation and management of a more effective and efficient QMS at DFS requires more expertise in forensic science; hence, support for more specialized training and professional development for current Quality Unit staff is needed. Staff will benefit from opportunities to attend relevant workshops. Their training should also include visiting other forensic laboratories with well-established QMS' to learn how they implement and manage an effective QMS. DFS could also encourage current staff members to become forensic laboratory accreditation assessors for external accrediting bodies.

SNA recommends restructuring the Quality Unit to reflect the supportive role that this unit provides to the FSL (see SNA's proposed organizational chart, Figure 3) and the PHL. Ideally, the new Quality Support Unit should be led by a Chief Quality Assurance Officer who has experience supporting quality operations across multiple forensic disciplines. And, at minimum, the Quality Support Unit needs to employ at least one Quality Specialist with recent experience as a forensic laboratory quality manager from a laboratory that has demonstrated sustained accreditation under the ISO/IEC 17025 Standard while under this individual's quality management leadership. This individual needs to have experience in training Quality Assurance Specialists on all relevant forensic laboratory QA

[53] SNA did not talk with this individual as they were out on extended leave.
[54] The College of American Pathologists hosts ISO 15189 accreditation of and proficiency testing programs for medical/clinical laboratories, https://www.cap.org/ (accessed 11/27/2021).

standards, requirements, and guidelines; how to properly assess and document laboratory conformance, and other critical activities pertinent to achieving and sustaining ANAB ISO/IEC 17025 accreditation. Likely, finding experienced Forensic Quality Specialists will take some time, and recruiting experienced staff should be among the highest of DFS priorities. In the interim, the DFS should enlist support from properly vetted, independent expert forensic quality consultants.

Recommendation 27: Quality Support Unit

Reorganize current DFS Quality Unit to a new Quality Support Unit that:

- Is led by a Chief Quality Assurance Officer who has experience supporting quality operations across multiple forensic disciplines.
- Engages directly with all Forensic Units.
- Has staff experienced in forensic laboratory quality assurance and accreditation.

Many forensic DNA operations across the country are successful because they comply with the Forensic Bureau of Investigation (FBI) Quality Assurance Standards (QAS). One requirement of the FBI QAS is for the forensic DNA laboratory to have a Technical Leader.[55] The DNA Technical Leader position has the following responsibilities and authorities, all defined by the FBI QAS:

- Evaluate and approve all validations and new or modified methods used in the unit.
- Review training for newly qualified analysts, technicians, and technical reviewers.
- Approves staff qualifications prior to authorizing to perform independent casework.
- Review, verify and approve academic transcripts of newly qualified analysts.
- Approve the technical specifications of casework outsourcing agreements.
- Review internal and external audit documents.
- Approve corrective actions.
- Annually review the unit's procedures.
- Review and approve training, QA, and proficiency test programs.
- Initiate, suspend, and resume analytical operations for the unit or an individual.

The LFU has a Forensic Scientist Technical Leader with a position description that did not grant full authority over technical operations within the unit. The job description outlined the LFU Forensic Scientist Technical Leader's role not as an individual with independent authority over the unit's technical operations, but rather as assisting the Unit Forensic Scientist Manager in making technical operation decisions. SNA recommends that each Forensic Unit have a Forensic Scientist Technical Leader position with the same independence, scope of authority, and responsibility over the units' technical operations

[55] The FBU has two Forensic Scientist Technical Leaders. The primary Forensic Scientist Technical Leader role is as described for the Technical Leader in the FBI Quality Assurance Standards for Forensic DNA Testing Laboratories and has full oversight of all technical/quality operations within the FBU.

as the FBU's primary Forensic Scientist Technical Leader. The Forensic Scientist Technical Leader of each unit must have demonstrated skills in organization, documentation, and use of quality management and database software. These skills are critical to the successful fulfillment of the duties and responsibilities of a Technical Leader. Finally, the scope of authority of the Forensic Scientist Technical Leader of each unit must include the ability to initiate, suspend, and resume analytical operations.

The Forensic Unit Forensic Scientist Technical Leaders must be recognized as the front-line managers of their units' QA programs; SNA observed that the Quality Unit, and to a lesser degree the Training Unit, had what might be viewed as too much authority over the individual Forensic Units' QA and training programs. To ensure that unit Forensic Scientist Technical Leaders are free to establish and manage effective QA and training programs within their own units, it is proposed that the roles of the Quality and Training Units be redefined as Quality Support Unit and Training Support Unit: facilitative in nature, thereby assisting the unit Technical Leaders with critical support, infrastructure, quality assurance, and training expertise, and other mission support, as required by the unit Technical Leaders.

Recommendation 28: Implement a Forensic Scientist Technical Leader position in each Forensic Unit

Implement and staff a Forensic Scientist Technical Leader position in all Forensic Units. This individual has demonstrated knowledge, skills, abilities, and competency in all the technical operations of their discipline and is provided with the same independence, scope of authority, and responsibility for the units' technical operations as the current FBU Forensic Scientist Technical Leader position.

4.1.10 DFS Forensic Document Organization

While the DFS has been in existence for almost a decade, it can still be considered a relatively new organization that continues to refine its policies and procedures. The DFS Quality Policy Statement (Document No, 4864-4) states in the second paragraph:

> "The agency management is committed to good professional practice and to the quality of testing in servicing customers. It is the policy of the DFS that testing be carried out in accordance with the DFS Departmental Operations Manuals (DOMs), Division Quality Assurance Manuals (QAMs), Laboratory Operations Manuals (LOMs), and Standard Operating Procedures (SOPs) thus facilitating a high standard of service."

The DFS Forensic Operations had numerous separately controlled documents with overlapping policies and procedures, including:

- Policy Documents (e.g., DFS Quality Policy Statement, Policy for Investigation of Credible Errors, etc.).
- Department Operations Manual (DOM) with 21 sections consisting mostly of procedures.
- FSL Quality Assurance Manual.
- FSL Laboratory Operations Manual (LOM) with three sections.
- FCU Quality Assurance Manual.
- DEU Quality Assurance Manual.
- FBU Quality Assurance Manual.
- DEU LOM.

As stated in the DFS Quality Policy Statement, there were additional quality manuals over the Forensic Units:

- FSL QAM describes the QMS of the three Forensic Units under the administration of the FSL (FBU, LFU, FEU).[56]
- FBU QAM details how the FBU complies with the FBI Quality Assurance Standards.
- FCU under the PHL has its own QAM.
- DEU and FCU each have unit-specific QAMs.[57]

A system with multiple quality manuals can become confusing, fosters inefficient document control, and is error-prone. A more efficient practice for document control and change management would be to incorporate the QMS of the five Forensic Units within a single FSL QAM, while the DFS QAM (or DOM) contains all overarching DFS policies, would operate over the FSL and PHL. The FSL QAM would then refer to the DFS QAM where appropriate.

Recommendation 29: Consolidate the Multiple Quality Manuals into a Single Quality Management System Manual

Describe its Quality Management System in a single, overarching Quality Assurance Manual that addresses all the standards and requirements of ANAB ISO/IEC 17025:2017 accreditation of all forensic disciplines (DEU, FBU, FCU, FEU, LEU). This consolidation can occur during the routine manual update process of the Department.

[56] The DFS organizational chart does not depict the DEU within the FSL. The DFS website states that the DEU is within the FSL (see https://dfs.dc.gov/page/forensic-science-laboratory-division-fsl, accessed 11/27/2021).
[57] Ibid.

4.1.11 Legal

General Counsel (GC) supports the unit primarily responsible for responding to discovery requests and subpoenas received by the DFS. During SNA's assessment of process and practice, it became apparent that complying with discovery requests was an arduous task both for the DFS and the customers and stakeholders requesting discovery. Based on SNA research, SNA concluded that removing names from internal CoC records and Q-CARs caused DFS stakeholders to be suspicious.[58] Also, case documentation was not centrally stored, and requests for information from different laboratory staff resulted in differences in the discovery request process and output.

4.1.11.1 Responding to Brady and Giglio Requests

Pursuant to the Department of Justice Giglio Policy, and the dictates of Brady v. Maryland, 373 U.S. 83 (1963), Giglio v. United States, 405 U.S. 150 (1972), and their progeny, the USAO is required to obtain any information compiled in the personnel files of the potential law enforcement witnesses[59] that may be used to impeach the witnesses' testimony at trial. "Personnel files" is considered a generic term that is intended to include all employment files (disciplinary, complaint, training, security, or other) maintained by the Agency that may contain the desired information. The USAO takes a broad view of materiality and errs on the side of disclosing exculpatory and impeaching evidence.

Therefore, for each case going to court, the USAO requested that the DFS review the personnel files of the identified employee(s) and provide the prosecution with any information that falls within the following categories:

Any allegations currently under investigation or any findings ever made during a criminal, civil, or administrative proceeding concerning:

1. A lack of truthfulness, integrity, and/or candor, or
   a. possible bias, or
   b. official misconduct (which includes, but is not limited to, failure to disclose exculpatory information; witness coaching; obstruction; manufacturing or altering evidence).
2. Any adult arrest, charge, or conviction for a criminal offense in any jurisdiction.
3. Any judicial finding that the employee testified untruthfully, made a knowingly false statement in writing, made an unlawful arrest, conducted an illegal search or seizure, illegally obtained a confession, or engaged in some other misconduct.

[58] Interviews with several USAO staff reiterated concerns with lack of detail and confusing chain of custody records.
[59] Forensic scientist witnesses usually fall under the category of Expert Witnesses.

4. Any finding or pending allegation that relates to a substantive violation concerning:
    a. failure to follow legal or Agency requirements for the collection and handling of evidence, obtaining statements, recording communications, or in obtaining consents to search, or
    b. failure to comply with Agency procedures for supervising the activities of a cooperating witness or informant, or
    c. failure to follow mandatory protocols with regard to the forensic analysis of evidence.

The FSL used Q-CARs to document and track nonconformance events (those with great impact on the quality system or frequency of occurrence), a root cause analysis, and a description of the action put in place after a nonconformance event to identify and eliminate the cause of the undesirable situation and to bring the deficiency into conformity with a required standard.[60] Q-CARs may or may not be subject to Giglio/Brady rules based on the content of the Q-CAR.

To improve self-reporting of issues within the laboratory and claiming to be "keeping with all other independent government forensic laboratories in the nation,"[61] DFS decided to operate its Q-CAR process anonymously. This means that individuals involved in incidents that give rise to a Q-CAR were identified by job title rather than by name. The laboratory believed that this approach helped ensure employees were open and unrestrained in their self-reporting of potential departures from standard operations, allowing the quality process to focus on QC rather than attributions of personal responsibility.[62,63]

SNA conducted an informal review of a sample of laboratories nationwide to determine if they removed names from Q-CAR documents. A total of 10 labs were polled. There was no consensus over the removal of names from Q-CARs, and the majority of labs included the names. Some include the names on the Q-CARs but then block off the names when the Q-CARs were sent out for discovery and had a process in place for reporting Brady/Giglio issues. This approach seems the most reasonable and one that encourages staff to identify and report potential operational issues and allows the DFS to track quality trends while making sure Brady/Giglio issues are correctly reported.

Recommendation 30: Satisfying Brady/Giglio Discovery Requests

Consider including names on Q-CARs and then redacting them when the Q-CARs are provided as part of discovery. See Recommendation 26 for reporting Brady/Giglio issues.

[60] FSL Quality Assurance Manual ISO_IEC 2017 Document Control Number 10164, Issue date 7/29/2019, Quality Terminology, p16.
[61] February 24, 2020 Quality Corrective Action Reports Availability memo from Lyndon Watkins, DFS Quality Manager.
[62] November 30, 2017 email from Brittany Graham to Kristie Stone and Kimberly Clements titled *Re: QCAR 17-013-CSS - UPDATE.*
[63] Lyndon Watkins, DFS Quality Manager Memo February 24, 2020, Quality Corrective Action Reports Availability.

4.1.11.2 Discovery Process

Historically, a discovery request for a particular case would be sent to the DFS through the USAO portal. Additionally, requests for information that span multiple cases or involve general requests were sent by email to DFS General Counsel or occasionally directly to laboratory staff. SNA structured interviews with several USAO attorneys revealed frustration from the need to negotiate the scope of documents required for disclosure and the need to request several times for one specific case record. The DFS would benefit from having dedicated legal support with criminal trial experience to work with their customers and provide the appropriate discovery material. This person could also support the Brady/Giglio notifications and courtroom testimony training and preparation.

Recommendation 31: Legal Support

Adopt a dedicated legal support model to work with the DFS' customers to provide the appropriate discovery material. This person could also support the Brady/Giglio notifications and courtroom testimony training and preparation.

4.1.11.3 Courtroom Testimony

Scientific opinion delivered by sworn testimony in a court of law is one of the forensic service deliverables provided to the customer. To that end, laboratory management must seek feedback from the court regarding the effectiveness of testimony provided by DFS staff. During the structured interviews, SNA learned that the USAO often contracts outside SMEs for courtroom testimony. This testimony involved the general subject matter field and did not involve testing performed by DFS staff. Ideally, this testimony could be provided by the DFS. However, SNA did not find evidence of designated technical specialists that could provide testimony on more complex scientific issues (e.g., testimony on secondary DNA transfer). Providing additional training to the Unit Forensic Science Technical Leaders would be helpful and allow them to provide more informative testimony as needed. See Section 4.1.9.2 Quality Staffing and Support.

SNA also learned that in some cases, when evidence needed to be presented to a judge or jury, prosecutors developed presentation aids for the DFS staff. The DFS could improve customer service by proactively ensuring their technical staff is prepared to provide accurate and informative courtroom testimony using presentation aids they prepared themselves and that clearly describes the testing process and associated complex scientific issues. Each discipline should have a testimony reference package, a "to go" kit that contains pertinent scientific information, visual aids, curriculum vitae, and any other information they feel will make their testimony more effective. See Appendix N: Recommended Actions to Enhance Courtroom Testimony.

Recommendation 32: Develop Courtroom Testimony Presentation Aids

Develop and maintain a dedicated and up-to-date courtroom testimony presentation "to go" kit that contains pertinent scientific information for each Forensic Unit. Each examiner should customize their testimony package for each case when preparing for their courtroom testimony.

4.1.12 Security

ISO/IEC 17025:2017 clause 6.3.4.1 requires the DFS to have a procedure to address security and access to areas where testing occurs. DFS had a security policy in FSL QAM Section 6.3.4 and a procedure in DOM01 Section 4.2.4. However, the policy and procedures were not followed. DOM01 clause 4.2.4 states, "conduct annual review and/or inspections of the security procedures of the DFS." In accordance with DOM01 clause 4.2.1, this review was the responsibility of the DFS Chief Operating Officer, Safety Officer, or designee. SNA was not able to locate any evidence that security reviews were performed according to DOM01 since 2014. The last DFS security review was performed by the US Department of Homeland Security, Protective Security Coordination Division, and the Field Operation Branch Assessments Group in 2017. The resulting September 20, 2017 report[64] identified over 40 "Facility and SAA Vulnerabilities and Options for Consideration."[65] The DFS was not able to produce evidence that any of the vulnerabilities and options for consideration were addressed.

The Security nonconformance findings to ANAB ISO/IEC 17025:2017 and AR 3125 requirements were related to DFS security policies not being followed (ISO/IEC 17025 - 6.3.4; AR 3125 - 6.3.4.1). See Appendix O: Security Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements.

4.1.13 Chain of Custody

Inadequate CoC procedures and records compromise the integrity of evidence. (See Section 4.1.9.1 Quality Corrective Action Reports for a specific discussion related to recurring CoC Q-CARs). SNA found that the DFS CoC records were incomplete and lacked sufficient detail to include names of places and personnel authorized to handle and store evidence. CoC records use unit names (e.g., CEU, FEU) or numeric codes instead of personnel names or specific locations. Lack of CoC and records compromises the legal weight of the evidence and may even result in probative evidence not being admitted into court. Proper evidence handling depends upon personnel following well-written and clearly understood policies and procedures. The Chief Forensic Science Officer must authorize and limit designated personnel and places to handle and store evidence. The

[64] Department of Homeland Security Infrastructure Survey Security & Resilience Report 20 September 2017.
[65] SAA was defined in the report as significant assets and areas.

CoC documenting transfers of evidence between authorized places and personnel must be recorded in all case files and maintained for Discovery and courtroom testimony. The LIMS electronic CoC records are preferred and must contain the necessary controls to verify evidence inventory for all locations and personnel.

SNA's nonconformance findings to ANAB ISO/IEC 17025:2017 were related to CoC gaps (ISO/IEC 17025 - 7.4.1). See Appendix P: Chain of Custody Nonconformance with ISO/IEC 17025:2017 Forensic Laboratory Accreditation Requirements.

4.2 Crime Scene Sciences Division (CSS)

SNA's review of the DFS forensic operations was limited to the areas that ANAB accredited. CSSU and CEU, which make up the CSS, were not within the scope of the SNA review. SNA recommends the CSSU and CEU be assessed as soon as possible and include both units within the ISO/IEC 17020/17025 accreditation process. DFS must demonstrate that they can effectively protect evidence against loss, degradation, contamination, and tampering with proper packaging, seals, storage, and shipping conditions. The CoC must be seamless and established from the point of collection through long-term storage. Documentation includes records of personnel sealing and unsealing evidence containers and transferring evidence from designated personnel and storage locations. Assurance that each link of the chain is seamlessly connected to the next is recorded contemporaneously by the specific individual responsible for that link, ultimately compiling a series of well-documented transactions.

Recommendation 33: Crime Scene Services Division

Have a Forensic Science Consultant perform a review of the Crime Scene Services Division in preparation for the Division moving forward with obtaining accreditation.

4.3 Digital Evidence Unit (DEU)

Beginning operations and issuing reports in 2017, DEU is the newest Forensic Unit at the DFS receiving ANAB Flexible Scope Accreditation in 2019. DEU scientists perform forensic acquisitions, extractions, examinations, and analysis of digital and multimedia evidence. Multimedia evidence typically includes computers, mobile devices, video systems, vehicle infotainment systems, and other electronic devices containing data that may have probative value. The DEU issued 1282 reports in 2020 that were based on individual evidence items that were examined. As of June 2021, DEU had an eight-case backlog.[66]

The nonconformance findings included a lack of competent management practices, a Lead Forensic Scientist that has neither the qualifications outlined in the job description

[66] Digital evidence cases typically have a number of reports so an eight-case backlog could represent 50 or more reports.

nor is compliance with Sections 6.2.5.2 of the FSL and DEU Quality Assurance Manuals,[67] a lack of records to show that scientists were properly trained and competency tested in all laboratory activities that influence the testing results, and an ineffective training program based on outdated best practices and unvalidated methods for performing acquisitions, extractions, examinations, and analyzes of digital evidence. Previous internal audits failed to detect major nonconformances or identified some deficiencies but failed to correct or prevent repeated nonconformances due to a lack of root cause or risk analyses.

Specifically, SNA's nonconformance findings to ANAB ISO/IEC 17025:2017 and AR 3125 requirements included:

- Validity of results (ISO/IEC 17025 - 5.5c, 7.5.1; AR 3125 - 7.5.1.3)
- Competency (ISO/IEC 17025 - 6.2.1, 6.2.2, 6.2.3; AR 3125 - 6.2.3.1, 6.2.3.2)
- Training (AR 3125 - 6.2.2.2)
- Equipment (ISO/IEC 17025 - 6.4.3, 6.4.10, 6.4.13, 7.4.1; AR 3125 - 6.4.3.2)
- Methods (ISO/IEC 17025 - 7.2.1.2; AR 3125 - 7.2.2.1.1)
- Handling of evidence (ISO/IEC 17025 - 7.4.1; AR 3125 - 7.4.1.1)
- Identification of evidence (ISO/IEC 17025 - 7.4.2; AR 3125 - 7.4.2.1)
- Review of technical records (AR 3125 - 7.7.1.L)
- Monitoring performance (ISO/IEC 17025 - 7.7.2; AR 3125 - 7.7.2.1, 7.7.4)
- Reporting results (ISO/IEC 17025 - 7.8.1.2; AR 3125 - 7.8.1.2.2)

See Appendix Q: DEU Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements.

SNA SMEs reviewed 24 DEU cases and did not find any errors. However, seven of the cases exhibited one or more of the nonconformance findings. Due to the number of nonconformances identified, SNA recommends the DFS initiate an independent, external review of a sampling of DEU cases to assess whether DEU casework warrants re-examination.

Recommendation 34: Evaluation of DEU Cases

Initiate an independent, external review of a sampling of DEU cases to assess whether DEU casework warrants re-examination.

To facilitate the use of digital evidence in investigations, there should be a goal to transition at least one DEU staff to CSS to unlock phones and/or extract data for investigative leads. DEU should collaborate with accredited laboratories and police departments that extract data in the field for investigative purposes as a knowledge-

[67] "6.2.5.2. Selection of personnel. Personnel must meet position description requirements and undergo selection process established by the District of Columbia Human Resources Agency. The DFS hiring policy is defined in Procedures for Interview and Selection Process. Records of selection of personnel are retained by DFS HR".

sharing resource. The new CSS staff member must have written validated procedures, be trained, and pass a competency test to ensure there is no loss or contamination of forensic evidence. If the evidence extracted in the field will be used in court trials, then data should be re-extracted, analyzed, and reported by an accredited laboratory. This field triage model would supplement the current capabilities of the DFS while the DEU hires staff and becomes accredited.

Recommendation 35: Establish A Digital Evidence Triage Workflow Model for Investigative Leads

Establish a digital evidence triage workflow model comprised of investigative 'field forensics' using trained, competency tested, and authorized first responders to handle, examine and extract data from mobile devices and surveillance systems to obtain investigative information that will assist in locating missing persons, respond to imminent threats of public safety, and other investigative functions.

4.4 Firearms Examination Unit (FEU)

The primary responsibilities of the FEU were to perform operability examinations on submitted firearms, evaluate submitted firearms and cartridge cases for NIBIN entry, and perform examinations of recovered bullets and cartridge cases for purposes of making common source determinations. The FEU issued 10,590 reports in 2020 and had a backlog of 4,312 cases as of June 2021. Currently, the unit is no longer represented on the most recent organizational chart issued for the FSL.[68]

The macro root cause-effect for the misidentification made by FEU examiners in the McLeod case was inadequate training by the DFS. The examiners who underwent the comparative training did not learn to apply subjective identification criteria with sufficient rigor to discern differences and similarities reliably. Consequently, examiners were not qualified to render accurate, common source determinations, especially in circumstances in which the data sets were weak. This same root cause could be the basis for examiners inappropriately calling examination results inconclusive. SNA reviewed the training curriculum for bullet and cartridge case comparisons and could not find any practical exercises involving the comparison of bullets and cartridge cases in known non-matching conditions. Such comparisons are essential for an examiner to develop rigorous and reliable identification criteria to make accurate common source determinations. The inability of FEU to make accurate common source determinations cast doubts on previous casework analyses.

[68] According to the DFS FLS organizational chart dated September 30, 2021.

Recommendation 36: Ensuring the Validity of FEU Case Reports

Immediately begin to work with stakeholders, including the USAO, OAG, and the respective public defender offices, to establish and implement a plan to have qualified external examiners re-examine FEU case reports, to include all evidence and associated documentation.

FEU nonconformance findings to ANAB ISO/IEC 17025:2017 and AR 3125 requirements were related to:

- Training and competency (ISO/IEC 17025 - 6.2.1, 6.2.6; AR 3125 - 6.2.2.2, 6.2.6).
- Handling of test items (AR 3125 - 7.4.1.1).
- Abbreviations (AR 3125 - 7.5.1.2).
- Technical records (ISO/IEC 17025 - 6.2.3; AR 3125 - 7.5.1.3).

See Appendix R: FEU Nonconformance with ISO/IEC 17025 and ANAB Forensic Laboratory Accreditation Requirements.

At the completion of training and competency testing, the DFS should require trainees to pass a proficiency test for bullets and cartridge casing comparisons test method. This proficiency test should be conducted by an organization outside of DFS. Once a trainee passes the proficiency test, FEU management will authorize the successful trainee to perform their authorized duties on firearms casework.

Furthermore, in discussions with one examiner and current trainees, it was asserted that quality mentoring was missing. One trainee in particular did not believe they had sufficient microscopic mentoring. They indicated to SNA that they were “on their own” for much of the training. In addition, when making an error in a competency test, they were not given guidance on how they may have misinterpreted the data being observed. They were simply told they were wrong and had to identify to the FEU Management team why their original assessment was incorrect.

Similarly, it was stated that elements of training could be rushed to meet casework demands, including the comparison training. For example, in an interview with one examiner, they stated that their training was suspended for two months and then, when it was resumed, they were rushed to complete bullet comparison training. This examiner then indicated that once training was complete and they moved into supervised casework, there were several concerns:

- Bullet comparisons were not involved in any of this supervised casework; they would only be accepted for comparison in homicides, and homicides would not be included as supervised casework.
- The extent of supervised casework was double verification – a second verifier would verify the comparative examination results. None of the worksheets or other

documentation would be checked, just the results of the comparative examinations. This is inadequate as correct answers can be obtained for the wrong reasons.

FEU should provide sufficient mentoring of new staff from qualified FEU trainers so that trainees receive constant feedback on comparison exercises and, therefore, can develop a rigorous criterion for identification.

Recommendation 37: Improving FEU Training Curriculum Delivery

Provide consistent and continual mentoring from qualified FEU trainers so that trainees receive constant feedback on comparison exercises and develop the skills to provide accurate, common source determinations.

Interviews have indicated that there was pressure to ensure casework numbers were sufficiently high, pushing for productivity at high levels. Furthermore, there were indications, learned through interviews, that examiners and trainees were pushed to spend significant hours on the comparison microscope performing comparisons in casework and training. Spending exorbitant hours on a comparison microscope can lead to eye fatigue resulting in suboptimal decisions being made when performing comparative examinations. Moving forward, SNA recommends that eye fatigue caused by microscopic examinations be assessed for risk impact. See Table I-2: Executive Leadership Nonconformance – Risks and Opportunities in Appendix I.

An interview with one examiner indicated that the assessment of design features and class characteristics was performed contemporaneously with comparisons and documented after comparisons were performed. The reason was that such features and characteristics were assessed on the comparison microscope and the arrangement of the LIMS computer. The assessment of design features and class characteristics should be performed prior to comparisons because this is how it is determined which comparisons take place. DFS should purchase a stereomicroscope for each examiner workstation, which they can use to evaluate the design features and class characteristics of fired bullets and cartridge cases. These are generally bench-level instruments that can have cameras and can easily reside near the LIMS computer. Alternatively, the purchase and use of mobile tablets integrated with LIMS can be used so that examiners can more easily record observations as they are being made.

Recommendation 38: Purchase a Stereomicroscope

Purchase a stereomicroscope for FEU to evaluate the design features and class characteristics of fired bullets and cartridge cases.

In discussion with one examiner, verifiers have access to the analyst's results prior to verification through LIMS. The current process typically followed by examiners is prone to bias. Therefore, it is essential that the verifier be blocked from knowing the conclusions

of the assigned examiner until after the documentation of the verification is complete and documented in the case record.

Recommendation 39: Conduct Blind Verifications

To prevent bias in decision making, conduct blind verifications in FEU where casework verifiers are restricted from seeing the results of the original analysis until after the verifier reaches conclusions regarding the comparisons performed.

4.5 Forensic Biology Unit (FBU)

The FBU screens evidence for biological stains (e.g., semen, blood) and conducts human/male DNA quantification, DNA profiling by STR allele length variation using capillary electrophoresis, as well as profile analysis and interpretation using common forensic DNA software tools. Prior to losing accreditation, the FBU outsourced a significant quantity of evidence to commercial vendors for serology and DNA analysis minimizing the accumulation of unprocessed evidence at the DFS. Since the withdrawal of ANAB accreditation, the FBU is outsourcing all casework to commercial vendors. The DFS has made arrangements with accredited, National DNA Index System (NDIS) - participating state government laboratories to technically review outsourced DNA casework and upload Combined Offender DNA Index System (CODIS)-eligible evidence profiles into CODIS.

In 2020 the DFS hired a new "primary" Forensic Scientist Technical Leader to lead the FBU's technical operations. A second Forensic Scientist Technical Leader works with the primary Forensic Scientist Technical Leader and oversees training and casework technical operations. The FBU has comprehensive training and quality assurance programs to ensure best practices are followed within the unit and that staff have the knowledge, skills, and abilities to perform their work. The FBU continually assesses the performance of its staff through competency and proficiency testing programs. SNA concluded from their review of twenty-three case files and their associated batch binder documents that FBU staff appropriately applied their SOPs to all aspects of the casework process (benchwork, analysis and interpretation of data, report writing, and report review).

SNA's nonconformance findings to the ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements were related to:

- Work authorization documents that were missing authorized procedures and/or equipment (ISO/IEC 17025 - 6.2.6, AR 3125 6.2.6),
- Insufficient procedure, training, and oversight of the shipping process for outsourced biological evidence (ISO/IEC 17025 - 7.4.1 and AR 3125 - 7.4.1.1), and
- Unclear and incomplete summaries of the v2.3 and v2.4 STRMix™ validations (ISO/IEC 17025 - 7.2.2.1, AR 3125 - 7.2.2.1.1).

See Appendix S: FBU Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements for nonconformance tables showing requirements, the observed state, macro root cause effects, desired state, and recommended corrective action steps.

After satisfactorily addressing the nonconformances, the FBU will be ready for an ANAB ISO/IEC 17025:2017 accreditation assessment pending resolution of other nonconformance findings within the DFS on which essential operations within the FBU are dependent. By implementing the recommendations for improvement, the FBU will be better positioned to maintain ongoing accreditation.

Although the FBU followed the Scientific Working Group on DNA Analysis Methods (SWGDAM) Guidelines for the Validation of Probabilistic Genotyping Systems for their STRmix™ v2.3 and v2.4 internal validation studies, they did not have a complete validation and verification summary of their mixture interpretation protocols. After the FBU implemented STRmix v2.4 in 2017, additional standards and guidelines were published that provide further guidance to laboratories for ensuring that their DNA mixture interpretation process is accurate and consistent. SNA recommends that the FBU consult the following recent publications:

- Standard for Validation of Probabilistic Genotyping Systems (Section 4.7), ANSI/ASB, 2020. Available: http://www.asbstandardsboard.org/wp-content/uploads/2020/07/018_Std_e1.pdf
- Validation Studies of DNA Mixtures, and Development and Verification of a Laboratory's Mixture Interpretation Protocol, ANSI/ASB, 2018. [Online]. Available: https://asb.aafs.org/wp-content/uploads/2018/09/020_Std_e1.pdf and
- Standard for Forensic DNA Interpretation and Comparison Protocols, ANSI/ASB, 2018. [Online]. Available: http://www.asbstandardsboard.org/wp-content/uploads/2019/10/Std_040_e1.pdf.

The laboratory should consider conducting an expanded study similar to the Zoom Study: Additional Guidelines for Interpretation of Mixtures and Low Level Data Using GlobalFiler™ on the 3500/3500xL and/or STRmix™ 2.4, using a completely new collection of known DNA mixture sets for analysis. A comprehensive study such as this would be rare among public forensic laboratories, could set a standard for probabilistic genotyping and mixture interpretation validation, and provide guidance to other forensic laboratories as they validate and coordinate their own mixture interpretation protocols with their probabilistic genotyping software.

Recommendation 40: Conduct a Mixture Interpretation Validation of the GlobalFiler™ Interpretation Guidelines According to Current Best Practice.

Use recently published ANSI/ASB standards as guidance to perform a STRmix™ validation/verification study to ensure the mixture interpretation procedures continue to

be robust, mesh with STRmix™ deconvolution software settings and parameters, and produce expected/accurate results.

In 2020, the FBU released more reports from the casework that was outsourced to commercial vendors for testing than from the casework they processed in-house (1066 vs. 635).[69] At the time of SNA's assessment, the FBU had a total of 14 individuals that were regularly proficiency tested for continued casework competency: 1 technical reviewer, 2 technicians, and 11 reporting analysts.[70] The DFS should have the capacity to address all of its customers' forensic biology service requests in-house. While outsourcing is acceptable when there are surges in casework or to satisfy customers' requests for specialized services (e.g., genetic genealogical and mitochondrial DNA analyses, respectively), it is easier for the client to have their casework processed by one laboratory. The coordination of discovery and courtroom testimony is streamlined when the customer uses one laboratory.

Recommendation 41: Address All Routine Customer Forensic Biology Requests In-House

Assess the personnel, facilities, equipment, systems and support services required to effectively manage all FBU submissions within the organization, develop an expansion plan, and secure funding to enable the DFS to fully satisfy their customers' requirements for serology and DNA services.

The FBU training manual required that administrative and technical reviewer trainees practice reviewing case reports and conduct supervised reviews on case files and core binders. The FBU Manager was not sure whether pending or completed cases were used for these training purposes.

Recommendation 42: Revise Training Manual to Specify Cases Used for Training

Update the FBU training manual to specify whether completed cases and/or cases in progress are used for the purpose of training staff to conduct technical and administrative reviews. If completed cases are used for training purposes, SNA recommends that the FBU develop a policy and procedure to address any disagreement between trainee and trainer.

The FBU Forensic Scientist Manager and Lead Forensic Scientist job descriptions from 2014 listed outdated (e.g., ASCLD/LAB and FQS) and/or irrelevant (e.g., CLIA) requirements, and because these positions were not current, they were in conflict with Sections 6.2.2.1.1 of the FSL Quality Assurance Manual. The human resources job description for the FBU Forensic Scientist Manager listed the first responsibility as Technical Leader. The FBU Forensic Scientist Manager should focus on addressing the management issues (e.g., staffing, budget, supplies), and the Forensic Scientist Technical

[69] Reports Released_FBU.xlsx.
[70] October 4, 2021 email communication from the FBU primary Forensic Scientist Technical Leader.

Leader should be responsible for the technical leadership of the laboratory, including validation studies, training, and being the primary technical representative with the customer. There was a separate human resources job within the unit for Forensic Scientist Technical Leader with a position description that is more current and is as described in the FBI QAS for the Technical Leader role and responsibilities.

Recommendation 43: Update the HR Job descriptions for FBU Staff

Update the FBU job descriptions to remove outdated information and ensure position duties are current and clearly defined. The FBU Forensic Scientist Manager's job should focus on addressing the FBU management issues (e.g., staffing, budget, supplies). The Forensic Scientist Technical Leader(s) should be responsible for the unit's technical leadership, including quality operations, methods, and instrument validation, technical casework operations, training, and being the primary technical representative with the customer.

Extending arrows through boxes where a check mark designating either a "Yes", "No", or "N/A" is expected gives the appearance of a rushed review and could result in one or more elements of the review being overlooked. This practice was observed on some of the technical review checklists in the case folders and batch binders. SNA recommends that the reviewer designate or put a checkmark designating Yes (Y) or No (N), whichever appropriate, in the space provided for each element of the technical and administrative reviews.

Recommendation 44: Documenting Technical and Administrative Reviews

When completing FBU checklists, the reviewers should designate, with a checkmark, a response to each element, as appropriate, in the space provided for each element of Technical and Administrative Reviews.

The FBU devoted a considerable amount of time, funds, and staff to the validation of NGS for casework, development of protocols, and training of staff while under the leadership of Dr. Smith. DFS has not fully implemented NGS because according to the FBU manager:

- There was a lack of scientists from public forensic laboratories who are qualified to provide a rigorous external review of the FBU's NGS validation study and associated SOP.
- The FBU had not yet validated an SOP for interpreting NGS DNA mixture data.
- Probabilistic genotyping software for NGS was not yet available, and the FBU would have to use manual methods for interpreting the mixture profiles.

Although it is commendable that the DFS desired to be a leader in implementing new technologies and services to their customers, the FBU should reconsider NGS until after this technology has become more established in other forensic laboratories since they are able to satisfy their current customer needs without it.

Recommendation 45: Suspend NGS Initiative and validate Y-STR Analysis

DFS should suspend the NGS initiative and validate and implement a Y-STR test to enhance its autosomal STR service.

The FBU should validate and implement a male-specific, Y chromosome short tandem repeat (Y-STR) amplification/capillary electrophoresis-based DNA profiling system as soon as practicable. This technology is well-accepted in the forensic community and used by most public and private forensic laboratories as an enhancement to their autosomal STR service to identify male contributors to challenging male:female mixtures.

The LFU collected biological evidence for analysis by the FBU as described in Section 7.1.5 of LF02. If the LFU is not accredited at the same time as the FBU, the DNA evidence will need to be collected by FBU staff. The FBU may need to revise SOP(s) and provide additional training of FBU staff to accommodate this potential loss of service provided by the LFU.

Recommendation 46: DNA Evidence Collection

FBU staff should collect any potential DNA evidence from LFU items.

4.6 Forensic Chemistry Unit (FCU)

The FCU conducts forensic analysis and interpretation of drug evidence for criminal cases. The FCU also performs additional duties outside of their ISO/IEC 17025:2017 accreditation, including providing:

- Analysis of syringes from syringe exchange program for opioid surveillance
- Analysis of syringes for chemical identification from OCME for support of OCME death investigations
- Chemical identification for Department of Corrections for their drug surveillance
- Intelligence for MPD
- Chemical identification for a consumable product for the Alcoholic Beverage Regulation Administration (ABRA)

The FCU issued 911 forensic reports in 2020 and had a backlog of 57 cases as of June 2021. Since the withdrawal of ANAB accreditation, FCU has been outsourcing all casework.

The FCU's analytical testing procedures had been validated and were acceptable best practices used by forensic chemistry testing labs throughout the US. The trained FCU staff successfully completed proficiency testing each year. Upon review of 26 case files covering the range of commonly encountered drugs of abuse, SNA determined that the FCU used proper analytical procedures and interpreted the data correctly.

SNA's nonconformance findings to the ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements were related to:

- Competency testing (ISO/IEC 17025 6.2.6; AR 3125 - 6.2.3.1, 6.2.3.2, 7.7.1.g).1, 7.8.1.1.1)
- Method verification (AR 3125 - 7.2.1.1.2)
- Relevant versions of SOPs posted on the DFS website (ISO/IEC 17025 8.3.2)

All three of these issues were pointed out to the FCU Director. Two of the issues were resolved by the time SNA's site visit was complete and one after the visit. The FCU should successfully pass an ANAB audit on the technical operations of the FCU covered by both the ISO/IEC 17025:2017 and AR 3125 requirements. See Appendix T: FCU Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements for nonconformance tables showing requirements, the observed state, macro root cause effects, desired state, and recommended corrective action steps.

4.7 Latent Fingerprint Unit (LFU)

The LFU conducts evaluations and examinations of latent print lifts and images. The LFU also compares known finger or palm print records using visual comparison techniques and electronic search methods such as Automated Fingerprint Identification System (AFIS) to make common-source determinations and identify subjects. The LFU issued 4,792 reports in 2020 and had a backlog of 793 cases as of June 2021. Since the withdrawal of ANAB accreditation, the LFU has been outsourcing all casework.

SNA's nonconformance findings to ANAB ISO/IEC 17025:2017 and AR 3125 requirements were related to:

- Competency testing (ISO/IEC 17025 - 6.2.3, 6.2.5, 6.2.6; AR 3125 - 6.2.2.2, 6.2.3.1, 6.2.6)
- Selection and verification of methods (ISO/IEC 17025 - 7.2.1.5; AR 3125 - 7.2.1.1.2)
- Technical records (ISO/IEC 17025 - 7.5.1; AR 3125 - 7.5.1.3, 7.7.1.g).1)

See Appendix U: LFU Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements for nonconformance tables showing requirements, the observed state, macro root cause effects, desired state, and recommended corrective action steps.

A significant finding that impacts the quality and completeness of LFU examinations is that examiners were not correctly determining the "*suitability*" of latent fingerprint images. The LFU Terminology document[71] defines *suitability* and *sufficiency* as follows:

> *Suitable: The determination that there is sufficiency in an impression to be of value for further analysis or comparison.*
>
> *Sufficiency: The product of the quality and quantity of the objective data under observation (e.g., friction ridge, crease, and scar features).*

LFU examiners are required to determine whether each latent fingerprint exhibits sufficient ridge characteristics to be suitable for further examination. As described in LFU04 - SOP Examination *of Latent Print Evidence-1381-13*, the examiner determines the suitability of each latent fingerprint image for comparison against known standards or AFIS searching. A suitability determination of "No Value" results in halting further examination of that particular print. When all latent prints in a case are found to be "No Value," LFU assigns a verifier to conduct a second review and confirm there are no suitable prints in the case. Thus, when the first examiner finds zero suitable prints, every latent fingerprint image is reviewed by a second examiner. However, for those cases having at least one suitable latent print, there is no further review or analysis of those latent prints evaluated as "No Value;" they are only reviewed once and not subjected to further review and analysis.

LFU examiners did not reliably determine suitability, which may have resulted in missed identifications or exclusions. On December 30, 2020, the DFS laboratory wrote Q-CAR-21-18126-FSL-LFU, which documented that LFU staff were improperly using the Mideo program, a system used for image processing and fingerprint comparison. This discovery prompted DFS to send 45 cases to a private contractor, RS&A, for an independent analysis. RS&A found that the LFU improperly evaluated the latent prints for suitability in 42 of the 45 cases.

SNA SMEs independently observed the LFU's inability to determine sufficiency by reviewing four additional cases. In each case, additional suitable images were identified and discussed with the Unit Forensic Scientist Manager and Forensic Scientist Technical Leader. Interviewees told SNA that the Mideo training took place one year before the system was put into operation. Figure 4 illustrates one of the 42 cases that the LFU improperly evaluated.

Figure 4: Example Case where LFU Missed an Identification

DFS LFU Original Examination:

- Nine latent prints examined - found two prints of value and seven to be of no value.
- No identifications were found in AFIS.

Independent Re-Examination by outside contractor:

- Nine latent prints examined - found eight prints of value and only one to be of no value.
- Seven prints were identified to one individual in AFIS.

[71] 662_LFU Terminology-10113-2.pdf.

The inability to determine latent print suitability by LFU examiners was also identified in 2012 when RS&A assessed the base skills of 11 LFU examiners. See Section 3.2 Missed Opportunities for Improvement.

SNA reviewed the LFU's proficiency testing records for the period from March 7, 2019, to October 4, 2021, and found that all staff passed, indicating the examiners can accurately conduct examinations and make associations (identifications). However, SNA was not provided with any documentation showing that all LFU examiners successfully completed practical competency tests prior to receiving authorization to perform casework duties at the DFS. It appears that competency testing for examiners who transferred from the MPD to the DFS in 2012 was not required.

In summary, there appears to be a systemic problem within the LFU in determining the suitability of latent prints. SNA recommends that DFS arrange for an independent external review of laboratory reports issued by the LFU.

Recommendation 47: Ensuring the Validity of LFU Case Reports

Immediately begin to work with stakeholders, including the USAO, OAG, and the respective public defender offices, to establish and implement a plan to have qualified independent external examiners re-examine LFU case reports, to include all evidence and associated documentation.

5 Suggested Actions for Moving Forward

SNA suggests aligning plans and resources to achieve the following four strategic goals:

- Pursue, secure, and maintain re-accreditation.
- Restore trust and credibility with customers and stakeholders.
- Re-establish cooperative, beneficial relationships with customers and stakeholders.
- Build updated organizational practices, policies, and protocols that promote excellence in all forensic operations, scientific practices, and business matters.

The remainder of this section describes the risks to achieving these goals and key actions for moving forward.

5.1 Risk Analysis

The purpose of this section is to identify key operational risks and the symptoms that indicate those risks may be materializing. Section 5.2 Change Management Action Plan, includes actions to prevent or mitigate the risks in this section.

There are four major risks to achieving the strategic goals:

Risk #1: Inability to hire requisite talent to build back credibility and trust in all levels of the organization. Symptoms include:

- DFS is unable to attract a suitable candidate pool and/or talent set in order to select the right candidates, thereby maintaining staffing shortages and mission shortfalls.
- Chief Forensic Science Officer and Unit Managers make hiring decisions influenced by perceived hiring constraints (e.g., residency requirements) rather than what is best for the DFS and its customers.
- Hiring decisions driven by expediencey, rather than the best interests of Forensic Operations, stakeholders, and the public.
- DFS stakeholders do not convey confidence in DFS' ability to hire executive leaders and Unit Managers who will ensure Forensic Operations are successful.

Risk #2: Efforts to gain and sustain accreditation fall behind schedule, encounter substandard execution, or begin to falter. Symptoms include:

- Ineffective or unclear measurement, reporting, and articulation of Forensic Operations performance and health and welfare.
- The Forensic Operations staff provides the DFS Executive Director with overly optimistic views of re-accreditation efforts or provides vague information in an attempt to deemphasize possible shortfalls.
- Intermediate Leadership adopts an overly narrow definition of success (e.g., laboratory program throughput favored over a combination of throughput, quality, and customer satisfaction).
- Extended timelines and insufficient priorities emerge for updating laboratory structures, policies, and practices to levels of being current, effective, and defensible.
- Tactical perspectives outweigh strategic perspectives and do not enable leaders to sufficiently evaluate, anticipate, and articulate what the business or operational environments require for mission accomplishment.

Risk #3: Stakeholder relationships remain strained or damaged without notable, quantifiable improvement. Symptoms include:

- DC Government Leadership does not have adequate visibility into the nature of DFS' relationships with key stakeholders.
- DFS remains insufficiently responsive (real or perceived) to stakeholder needs, feedback, or suggestions for improved customer service.
- Customers and stakeholders have no regular, meaningful interaction with DFS Leadership or staff members and have no way to provide feedback.

Risk #4: Forensic Operations staff return to legacy practices, fail to sufficiently implement changes, and/or do not consistently clearly operate within updated program management structures, policies, practices, and standards. Symptoms include:

- Unsuccessful or partial laboratory restructuring to build and enable the required leadership roles, communications, personnel development, and program oversight practices.
- Inability to consistently audit and articulate that staff members understand, accept, and execute their roles in line with updated policies, practices, and standards.
- Continued understanding and/or lack of acceptance of:
  - Mission connection with customers and stakeholders
  - DFS core values and beliefs
  - Consequences of failure
  - Ownership for Forensic Operations success
- The inability of staff to secure support or logically marshal resources in order to resolve shortfalls or challenges locally.

5.2 Change Management Action Plan

This section contains the key actions for DFS and DC Government leadership. These actions are strategic and will drive eventual outcomes.

5.2.1 Key Actions for DC Government Leadership

Following are recommended key actions for DC Government leadership:

DC Government Leadership Action #1: Establish an interviewing and hiring committee for the selection of forensic leadership personnel for the following positions: DFS Executive Director, Chief Forensic Science Officer, Chief Quality Officer, DEU Manager, LFU Manager, FEU Manager, Quality Support Unit Manager, and Risk Management Unit Manager. Following are recommendations regarding the committee:

- Chaired and led by the DFS Interim Director (until the new DFS Executive Director is selected, at which point they assume the chair).
- Include external stakeholders in the selection process.
- Include the Head of the Human Resources department as a participant to ensure the full breadth of recruiting and candidate selection methods are available to the committee.

DC Government Leadership Action #2: Secure the services of an external consultant to support the DFS Executive Director through the re-accreditation process. The consultant should be experienced in forensic laboratory operations and quality management systems to provide an external perspective on progress and the performance of forensic operations. Following are suggested tasks for the consultant:

- Provide the DFS Executive Director with an independent perspective on remediation of the root causes and nonconformances identified in this report.
- Identify and then secure the services of additional forensic, organizational development, and performance improvement experts to field a balanced perspective of performance and progress toward accreditation.
- Establish objective, realistic, time-oriented, qualitative and/or quantitative assessment criteria for use at all leadership levels to form a common operating perspective.
- Develop a performance scorecard or dashboard system that displays the health, welfare, and performance of forensic operations "at-a-glance" for DFS Leadership and the Deputy Mayor.

DC Government Leadership Action #3: Reorient Stakeholder Council meetings to address the overall performance of operations, DFS customer support and responsiveness, and brand perception. Develop an agenda that enables each stakeholder to express their perspective on DFS performance and identify areas for improvement. Develop a periodic survey to characterize and measure stakeholder views.

5.2.2 Key Actions for DFS Executive Leadership

Following are recommended key actions for DFS Executive Leadership.

Executive Leadership Action #1: Begin working with stakeholders, including the USAO, OAG, and the respective Public Defender Offices, to re-examine the casework from the reports issued by the FEU and the LFU since DFS began conducting examinations. In addition, because DEU technical procedures are not based on validated methods or current best practices, and there are no records to document staff completing required training and competency testing, the DFS should secure the services of qualified external independent examiners to review DEU casework.

Executive Leadership Action #2: Complete Q-CARs required to apply for ANAB accreditation for the FBU and FCU. Both units have internal resources and processes for executing quality operations. By assuming responsibility for their own quality systems, FBU and FCU can achieve accreditation independent of other DFS units, including the current Quality Unit. In addition, the corrective actions and recommendations for these units are relatively minor in totality in that they can be completed within a matter of weeks.

Executive Leadership Action #3: Following the structure outlined in *DC Government Leadership Action #1,* establish a hiring committee to fill Unit Technical Leader and other key staff positions. While potentially less-senior representatives from Human Resources and external stakeholders may participate, this approach confers the importance of these selections and reduces the likelihood hiring decisions will be driven by expediency.

Executive Leadership Action #4: Identify change management action teams to develop detailed change management action plans (CMAP) to complete the remaining Q-CARs and recommendations identified in this report. Each CMAP should identify:

- Processes and procedures impacted
- Owner
- Outcome
- Performance goals
- Timeline
- External stakeholders involved in change
- Required resources (e.g., equipment, supplies, information technology, personnel)

Executive Leadership Action #5: Secure the services of experts in ISO/IEC 17025 accreditation requirements to conduct an independent assessment for FEU, LFU, and DEU. When the independent assessment shows forensic operations are ready for accreditation, apply for ISO/IEC 17025 forensic accreditation in FEU, LFU, and DEU.

Appendix A: DFS Accreditation History

One of the priorities of the Department of Forensic Sciences Establishment Act of 2011, and the associated responsibility of the DFS Director, is attaining and maintaining accreditation to established standards. To this end, the DFS contracted with Forensic Quality Services (FQS)[72] to have the Forensic Units accredited to international standard ISO/IEC 17025:2005 "General Requirements for the Competence of Testing and Calibration Laboratories" noted below as ISO/IEC 17025. The DFS vision, mission, policies, procedures, instructions, controlled documents, and records were to be clearly written, understood, correctly implemented then used appropriately by the staff. Only after the QMS was in operation, with records enabling an audit trail, could the application be made for accreditation by the FQS accreditation body. Developing a QMS in compliance with ISO/IEC 17025 is a significant achievement for any forensic laboratory. The DFS earned ISO/IEC 17025:2005 accreditation on October 31, 2013, only eleven months after the laboratory opened in October 2012.[73]

In 2014, DFS' largest customer, the US Attorney's Office for the District of Columbia (USAO), hired an outside expert to conduct advanced statistical calculations on a criminal case slated for trial. The expert, Dr. Bruce Budowle, expressed several concerns regarding how the FBU interpreted DNA mixture profiles.[74] Because of these concerns, a USAO representative attended a DFS SAB meeting in the Fall of 2014 to present concerns over the mixture interpretation practices of the DFS FBU. The USAO engaged a panel of experts who reviewed the FBU's casework and mixture interpretation protocols. In addition to the issues with DNA mixture interpretation protocols and practices during their review, the expert panel[75] expressed concern over the lack of cooperation by DFS management to engage with the panel to discuss the scientific basis supporting the DFS' initial interpretation of the DNA results. On April 24th, 2015, accreditation of Forensic Biology services was suspended after ANAB conducted a surveillance audit of the FBU, finding eight major nonconformances and one minor nonconformance.[76] After remediation by the DFS, ANAB lifted the suspension in February 2016, and casework in the FBU resumed.

Since the FBU accreditation suspension in April 2015, ANAB accreditation noncompliance reoccurred within other parts of the DFS; on April 2, 2021, ANAB suspended the DFS' ISO/IEC 17025:2017[77] forensic testing accreditation. ANAB cited the findings stemming

[72] Forensic Quality Services, Inc. is an international accreditation agency that was acquired by ANAB in 2011.
[73] https://dfs.dc.gov/release/dc's-forensic-science-lab-gets-international-accreditation, accessed November 18, 2021.
[74] Final Report on Review of Mixture Interpretation in Selected Casework of the DNA Section of the Forensic Science Laboratory Division (FSL), Department of Forensic Sciences (DFS), District of Columbia. Bruce Budowle, Frederick R. Bieber. April 22, 2015.
[75] The expert panel was comprised of Dr. Bruce Budowle, Dr. Frederick Bieber, and Ms. Lisa Brewer.
[76] ANSI-ASQ National Accreditation Board Surveillance and Remote Surveillance Audit, April 24, 2015.
[77] The International Organization for Standards revised and reissued ISO/IEC 17025:2005 in 2017. ISO/IEC 17025:2017 is the current version of the standard.

from an investigation of analysis errors by the Firearms Examination Unit (FEU) and alleged DFS Management's lack of disclosure, reported by the USAO as the basis for the suspension and possible revocation of accreditation. On May 2nd, one month after the initial suspension, ANAB withdrew the accreditation of all five of the FSL's forensic disciplines (FEU, FBU, FCU, LFU, and DEU). All casework within the laboratory was discontinued. Table A-1 DFS FSL Accreditation History below summarizes the DFS FSL's accreditation history since its inception, including the accrediting body, dates of accreditation and expiry, the certificate number, and which units were accredited.

Table A-1: DFS FSL Accreditation History

Date	Accreditation Event
May 2013[78]	ANAB/FQS Pre-Assessment Review of DC DFS Consolidated Forensic Laboratory Quality Manuals and FBU, FEU and LFU SOPs to ISO/IEC 17025:2005 (External)
September 16-18, 2013	ANAB/FQS DC DFS FSL Report on Conformance with ISO/IEC 17025:2005 Accreditation Assessment FBI QAS:2011 Audit (External)
October 31, 2013	ANAB/FQS Certificate of Accreditation to ISO/IEC 17025:2005 FBI QAS:2011 Field: Forensic Testing Accreditation Certificate # AT-1819 Materials Examined: Latent Prints, Firearms, Biology
September 9, 2014	ANAB Off-Site External ISO/IEC 17025:2005 Surveillance Assessment of the management system. Notification letter from Accreditation Manager dated October 27, 2014.
September 24, 2014	ANAB On-Site External ISO/IEC 17025:2005 Surveillance Assessment
February 11, 2015	ANAB Certificate of Accreditation to ISO/IEC 17025:2005 FBI QAS:2011 Field: Forensic Testing Accreditation Certificate # AT-1819 Materials Examined: Latent Prints, Firearms, Biology
April 6-8, 2015	ANAB Surveillance and Remote Surveillance Audit of the DC DFS mixture interpretation procedures against the ISO/IEC 17025 standards and the FBI QAS, in response to the complaint filed by the USAO.[79,80]
April 24, 2015	ANAB suspends accreditation of FBU DNA services[81]
June 11-12, 2015	ANAB review and acceptance of DC DFS corrective action plan in response to nonconformities listed in the April 24, 2015 ANAB Surveillance and Remote Surveillance Audit[82]

[78] The report was dated May 2013 without providing a specific date or date range that the pre-assessment review took place.
[79] DC DFS contracted ANAB to perform an extraordinary assessment of the FBU in response to problems identified in the Final Report on Review of Mixture Interpretation in Selected Casework of the DNA Section of the Forensic Science Laboratory Division (FSL), Department of Forensic Sciences (DFS), District of Columbia. Bruce Budowle, Frederick R. Bieber. April 22, 2015.
[80] See ANAB FSL FBU IR ConCall 3-12-15.
[81] As stated in the ANAB Report on Surveillance and Remote Surveillance Audit conducted April 6-8, 2015.
[82] See ANAB OFI Response 06032015.

Date	Accreditation Event
February 16, 2016	ANAB lifts suspension of FBU ISO/IEC 17025:2005 and FBI QAS accreditation of DNA analysis services.
August 22-23, 2016	ANAB On-site ISO/IEC 17025:2005 Surveillance Assessment FBI QAS:2011 Audit Notification letter from Accreditation Manager dated September 24, 2016.
August 15, 2017	ANAB ISO/IEC 17025:2005 Off-Site Surveillance Review Notification letter from Accreditation Manager dated August 18, 2017.
September 10, 2017	ANAB ISO/IEC 17025:2005 FCU Pre-Assessment Document Review
November 6-7, 2017	ANAB ISO/IEC 17025:2005 FCU Pre-Assessment Audit
November 17, 2017	ANAB ISO/IEC 17025:2005 FCU Scope Extension Assessment Report
January 8-10, 2018	ANAB:2016 ISO/IEC 17025:2005 On-Site Accreditation Assessment
February 6, 2018	ANAB Scope of Accreditation to: ISO/IEC 17025:2005 ANAB ISO/IEC 17025 Accreditation Requirements for Forensic Science Testing Laboratories:2016 FBI QAS:2011 Field: Forensic Science Testing Accreditation Certificate AT-1819 Materials Examined: Latent Prints, Firearms, Biology, Chemistry.
May 21, 2018	ANAB ISO/IEC 17025:2005 Pre-Assessment Document Review and DEU Pre-Assessment
August 27-30, 2018	ANAB ISO/IEC 17025:2005 On-site Assessment of LFU, FEU, FBU, FCU, and DEU FBI QAS:2011 External Audit
October 2, 2018	ANAB Scope of Accreditation to: ISO/IEC 17025:2005 ANAB ISO/IEC 17025:2005 Accreditation Requirements for Forensic Science Testing Laboratories:2016 FBI QAS:2011 Field: Forensic Science Testing Accreditation Certificate #A-1819 Materials Examined: Latent Prints, Firearms, Biology, Chemistry. Notification of Seized Drug scope extension from Accreditation Manager dated October 9, 2018
October 4, 2018	ANAB notice of denial of Appeal 2: ISO/IEC 17025:2005, clause 4.13.1.4 for finding in the DEU.
November 14, 2018	ANAB Scope of Accreditation to: ISO/IEC 17025:2005 ANAB ISO/IEC 17025 Accreditation Requirements for Forensic Science Testing Laboratories:2016 Field: Forensic Science Testing Accreditation Certificate #A-1819 Materials Examined: Latent Prints, Firearms, Biology, Chemistry, Digital Evidence
August 14-16, 2019	FBI QAS:2011 External Audit
September 1, 2019	ANAB ISO/IEC 17025:2017 and AR 3125 Forensic Science Testing and Calibration Laboratories Accreditation Requirements Off-Site Review Report
September 25, 2019	ANAB Scope of Accreditation to: ISO/IEC 17025:2017 ANAB ISO/IEC 17025:2017 Forensic Science Testing Laboratories FBI QAS:2011

Date	Accreditation Event
	Field: Forensic Science Testing Accreditation Certificate #FT-0213 Discipline: Biology, Digital Evidence, Firearms and Toolmarks,[83] Friction Ridge, Seized Drugs
July 6-13, 2020	ANAB ISO/IEC 17025:2017 and AR3125 On-site Interim Assessment of the FEU
August 10-13, 2020	ANAB ISO/IEC 17025:2017 and AR 3125:2019 Surveillance Assessment FBI QAS:2020 Audit (external, virtual)
October 1, 2020	ANAB Scope of Accreditation to: ISO/IEC 17025:2017 ANAB ISO/IEC 17025:2017 Forensic Science Testing Laboratories FBI QAS:2020 Field: Forensic Science Testing Accreditation Certificate #FT-0213 Discipline: Biology, Digital and Video/Imaging Technology and Analysis, Firearms and Toolmarks, Friction Ridge, Seized Drugs
April 2, 2021	DC DFS ANAB ISO/IEC 17025:2017 and AR 3125 Accreditation of the FBU, DEU, LFU, FEU, and FCU suspended.[84]
May 2, 2021	DC DFS ANAB ISO/IEC 17025:2017 and AR 3125 Accreditation of the FBU, DEU, LFU, FEU, and FCU withdrawn.[85]

On January 28, 2021, Mayor Muriel Bowser, the head of the Executive Branch of the DC government responsible for the DFS operations, named Christopher Geldart to serve as Deputy Mayor for Public Safety and Justice. Following ANAB's withdrawal of the DFS accreditation on May 2, 2021, and after accepting the resignation of Dr. Smith, Mr. Geldart appointed Anthony Crispino, a longtime DC public servant, as the Interim Director of the DFS. Since May 27, 2021, Mr. Crispino has been leading the assessment effort and implementing corrective changes at the DFS.

[83] Per ANAB Forensics Assessment Activity Plan (FM 2037, Effective 2020/06/10), under Scope of Accreditation on page 3, it is stated: "Toolmarks was inadvertently on the current scope and will be removed (see 922_200711 Assessment Activity Plan-DCDeptofForensicSciences.pdf). Per 11/29/2021 email from ANAB, "Tool/Toolmark" was inadvertently entered on the 2019 Scope under "Physical Comparison" and again on the 2020 Scope. The DC DFS FEU performed physical comparisons of ammunition only.

[84] Per letter from Pamela L. Sale, ANAB Vice President, Forensics to Dr. Jenifer Smith, Director DC DFS, dated April 2, 2021.

[85] Per https://anab.ansi.org/appeal-processing, failure to appeal within 30 calendar days of notification of accreditation suspension results in formal withdrawal of accreditation (accessed 11/27/2021).

Appendix B: SNA Subject Matter Experience

The following table describes the experience of the SNA SME Team members.

Table B-1: DFS Assessment SMEs

SME Name	Position/Area of Specialization	# Years of Experience	Key Experience
Amanda Sozer, PhD	SNA's DFS Project Manager DNA ISO/IEC 17025 Prep	> 30	SNA Founder and Chief Science Officer, Forensic Geneticist and Former Forensic DNA Laboratory Assistant Director; twenty years of experience leading forensic assessment and accreditation programs
W. Mark Dale, MBA	Lead SME Lab Management ISO/IEC 17025 Prep/Assessments	> 40	Former Director at New York State Police Forensic Investigation Center; Director New York City Police Department Laboratory; Director Washington State Patrol Laboratory; Forensic Training Program Manager at US Army Criminal Investigation Laboratory; Founding Director Northeast Region Forensic Institute at University at Albany; Forensic publications author; American Society of Quality Certified Quality Auditor
Fabio R. Auffant II, MS	Digital & Multimedia Evidence ISO/IEC 17025 Preparations and Assessments	>30	Former New York State Police Crime Laboratory Digital Evidence Manager; Develops and teaches Cybercrime and digital forensics graduate and undergraduate courses at the University at Albany, the State University of New York as a full-time lecturer; ANAB ISO/IEC 17025 Technical Assessor in Digital and Multimedia Evidence
Wendy Becker, PhD	Human Resources Leadership, Organization Culture	>30	Professor of Management at Shippensburg University; Fellow in the Society of Industrial-Organizational Psychology; Editor for The Industrial-Organizational Psychologist; President of the Metropolitan New York Association of Applied Psychology; Vice President of HRStrategies Consulting; Senior Manager of Development Dimensions International; Ph.D. in Industrial-Organizational Psychology at Penn State University
Allison Eastman, PhD	DNA ISO/IEC 17025 Prep/Assessments	>30	Forensic consultant specializing in forensic biology (serology and DNA analysis) and forensic laboratory quality assurance; Former Director of Molecular Diagnostics at Albany Medical College Department of Pathology and Laboratory Medicine; Adjunct Associate Professor of Biological Sciences at the State University of New York at Albany; Supervisor of DNA Services for the New York State Police

SME Name	Position/Area of Specialization	# Years of Experience	Key Experience
			Forensic Investigation Center (retired); Technical Assessor for ASCLD/LAB-International; Current ISO/IEC 17025 technical assessor in forensic biology; New York State Commission on Forensic Science DNA Subcommittee member
Catherine Grgicak, PhD	DNA Mixture interpretation	>20	Former Professor at Boston University School of Medicine; Current Professor and Chair of Rutgers University-Camden Department of Chemistry; National Institute of Justice (NIJ) funded forensic research laboratory, Member of the National Institute of Standards and Technology (NIST)/NIJ Expert Working Group; International Society for Forensic Genetics member; Journal of Forensic Sciences Editor; Forensic DNA Consultant; forensic publications author
Raymond Jorz, AAS	Latent Fingerprint	>30	Former Detective and Latent Print Examiner for the City of Euclid (Ohio) Police Department; Lake County, Ohio Crime Laboratory Latent Print and Firearms Section Supervisor, Forensic Fingerprint and Firearms Examiner; Past President and Distinguished Life Member of the Ohio Division of the International Association for Identification (IAI); Past President and Life Member of the IAI
Terry Mills, MS	Chemistry (Seized Drugs) ISO/IEC 17025 Prep/Assessments	>40	Former Georgia Bureau of Investigation Laboratory Director; Current ISO/IEC 17025 Assessor; Senior Forensic Advisor for the Department of Justice International Criminal Investigative Training Assistance Program; Author Instrumental Data for Drug Analysis reference books
Ron Nichols, BS	Firearms and Toolmarks	>25	A private forensic scientist specializing in firearm and toolmark examination training; forensic publications author detailing the scientific foundations of the Forensic Firearm and Toolmark discipline; Retired, Department of Justice, Bureau of Alcohol Tobacco, Firearms and Explosives: Firearm and Toolmark examiner, NIBIN Section Chief, and NIBIN National Technology Coordinator
Chris Piehota, PhD	Leadership Human Performance Improvement	>30	Former Chief of Operations for FBI Science & Technology Programs (including Forensic Laboratories), PhD in Human Performance Improvement

SME Name	Position/Area of Specialization	# Years of Experience	Key Experience
Peter Pizzola, PhD	Lab Management Evidence Management ISO/IEC 17025 Prep/Assessments	>40	Former Director and Assistant Commissioner of New York City Police Crime Laboratory; Former Director of Yonkers Police Lab and Manager of Office of the Chief Medical Examiner Special Investigations Unit; Former Commanding officer of Yonkers PD Crime Scene Unit; Board-certified by the American Board of Criminalistics (ABC-GKE) and by IAI as Senior Crime Scene Analyst; forensic publications author
Peter Striupaitis, MS	Firearms and Toolmarks	>40	Former Chicago Police Department Firearm ID section, Illinois State Police Forensic Scientist I-III, & Public Service Administrator I, Assistant Laboratory Director; the University of Illinois at Chicago, Instructor in MS/FS Program; Acting Training FA Coordinator, Instructor for Alcohol, Tobacco, Firearms and Explosives (ATFE)/National Firearms Examiner Academy program; Scientific Working Group for Firearms and Toolmarks (charter) member; AFTE member & former President; American Association of Forensic Sciences (AAFS) /Fellow Member; IAI/ Emeritus/Life Member; American Society for Crime Laboratory Directors (ASCLD) Inspector; Firearm and Toolmark Training Officer; Adjunct Professor at St. Joseph's College, Indiana; Forensic firearms consultant
Ken Zercie, MS	Latent Fingerprint ISO/IEC 17025 Prep/Assessments	>30	Department of Emergency Services and Public Protection – Director Division of Scientific Services (Ret.); City of New Haven Dept. of Police Services Retired Detective; Past President and current Chairman of the Board of Directors of IAI; Adjunct Professor at the University of New Haven and Quinnipiac University; Member of the Scientific Working Group on Friction Ridge Analysis Standards and Technology; Certified Latent Fingerprint Examiner through IAI

Appendix C: Results of the Anonymous Survey Sent to DFS Staff

SNA disseminated an anonymous survey via the DFS group email list. SNA did not find anything inconsistent with the information that SNA had already collected through interviews, on-site visits, and document reviews.

Given proper study, prioritization, and resourcing, an objective review of survey insights can offer current DFS management opportunities to implement new or improved business processes, laboratory procedures, performance interventions, and focused training programs. In addition, the survey results provide an opportunity to establish targeted interventions that can refine and develop constructive cultural, leadership, and organizational norms. Such improved norms can potentially enable more effective communication between management and staff. Such communication leads to a participative sharing of mission ownership and enhanced performance for the DFS.

The SNA survey was sent to 214 individuals. The survey served as a voluntary data gathering initiative to allow all staff to offer perspectives that could be useful in determining areas for improvement or operational enhancement. SNA received 54 anonymous responses yielding a 25.2% response rate.

The anonymous survey was designed to assess two macro-organizational components: the workplace environment and individual staff attributes. The workplace environment questions were formulated to address DFS staff and management perceptions surrounding the information, resources, and incentives that promoted or limited organizational performance. The individual staff (personal) attributes were addressed by questions that assessed DFS staff and management feelings on the human knowledge/skills, capacity, and motives that comprised the human capital of the laboratory.

A slight majority (~56%) of respondents to Question 2[86] answered that they had received clear performance expectations from their managers. Approximately 28% of respondents felt they did not have clear performance expectations for their positions.

Question 3 asked if DFS staff members and managers give sufficient, timely, and behaviorally specific feedback regarding their performance. Approximately 56% of respondents felt that clear performance expectations were communicated by the DFS Laboratory, while approximately 44% of respondents for Question 3[87] thought they received sufficient, timely feedback regarding their performance.

Approximately 50% of respondents to Question 4[88] felt they were provided with the material, equipment, and time to perform their assigned jobs. The approximate 50%

[86] *Question 2:* Have clear performance expectations been communicated to DFS staff members and managers?
[87] *Question 3:* Are DFS staff members and managers given sufficient, timely, and behaviorally specific feedback regarding their performance?
[88] *Question 4:* Do DFS staff members and managers have the materials, equipment, and time to properly do their jobs?

negative response rate to Question 5[89] indicated that laboratory policies, procedures, and processes were not designed in a way that enhanced staff/managerial performance.

Approximately 46% of the respondents to Question 6[90] perceived alignment of staff/managerial motives with the laboratory mission, vision, and value were set in such a way that would promote performance to the best of people's abilities.

Questions that assessed the area of capacity provided insight into how the respondents felt about the DFS laboratory staff and managers' abilities to do their jobs and the related recruitment/selection/suitability process. Approximately 50% of respondents to Question 7[91] indicated that DFS laboratory staff and managers possessed the required abilities to succeed in their jobs. Question 8[92] addressed the recruitment and selection of staff and managers. Only about 35% of respondents felt that the DFS laboratory staff and managers could meet the laboratory's mission environment regarding knowledge, skills, and abilities.

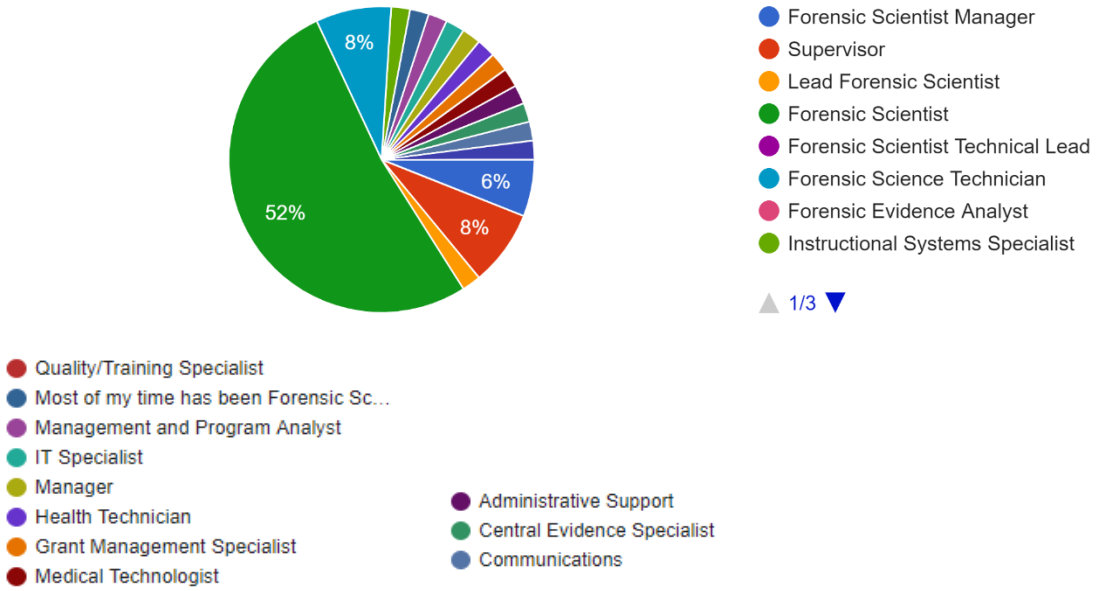
Approximately 50% of respondents to Question 9[93] felt that the laboratory provided a training system that promoted the guidance/instruction, which, in turn, allowed people to meet/exceed standards.

When given a choice of areas the respondents felt they would change (given the authority) to improve laboratory operations and performance, 77% of the respondents to Question 10[94] chose changes in Communication Channels (40 out of 52 responses). The next three areas: Laboratory Management, Training (DFS Staff), and Quality Assurance/Quality Control were rated at the same approximate 54% identification (each with 28 out of 52 responses). The last notable response area was Training (DFS Stakeholders) at an approximate 46% identification (24 out of 52 replies). The remainder of the response areas, Laboratory Operations, Customer Service, Testing Turn-Around Times, Testing Practices, Use of Contract personnel, were identified by lower response rates (approximately 29%, 14%, 6%, and 4%, respectively). Additionally, the respondents were given the opportunity to provide other ideas about improving the DFS operations.

[89] *Question 5:* Are DFS policies, procedures, and processes designed in such ways that enhance staff and manager performance?
[90] *Question 6:* Are the motives of the DFS staff and managers aligned with the DFS mission, vision, and values in such ways that the laboratory staff and managers consistently perform their roles to the best of their abilities?
[91] *Question 7:* Do the DFS staff and managers have the requisite abilities to do what is expected from them for success on the job?
[92] *Question 8:* Are DFS staff and managers recruited and selected with knowledge, skills, and abilities that meet job duties and responsibilities?
[93] *Question 9:* Are the DFS staff and managers provided with a systematic training system that provides them with the guidance and instruction necessary to understand their roles and maintain the skills necessary to meet or exceed laboratory standards?
[94] *Question 10:* If you were provided with the required authorities and resources, where would you make immediate changes to improve DFS laboratory operations and performance (check as many as applicable)?

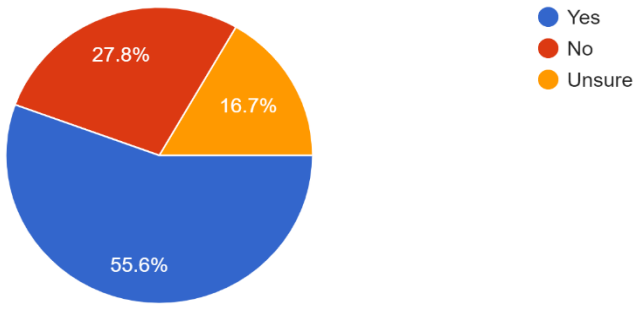
Question 1: Which of these options best describes your position at the DC DFS?

50 responses



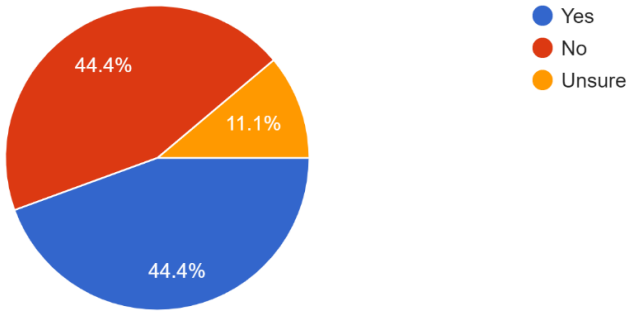
Question 2: Have clear performance expectations been communicated to DFS staff members and managers?

54 responses



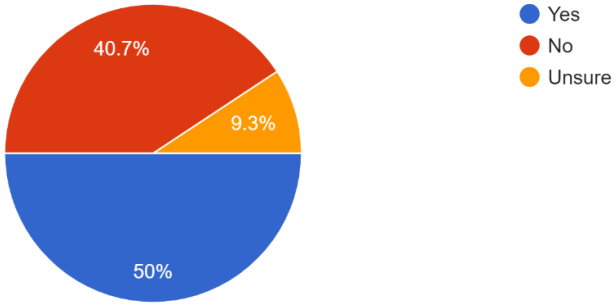
Question 3: Are DFS staff members and managers given sufficient, timely, and behaviorally specific feedback regarding their performance?

54 responses

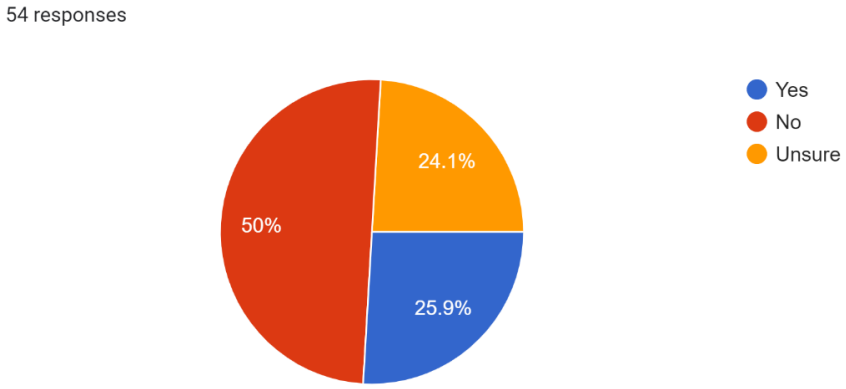


Question 4: Do DFS staff members and managers have the materials, equipment, and time to properly do their jobs?

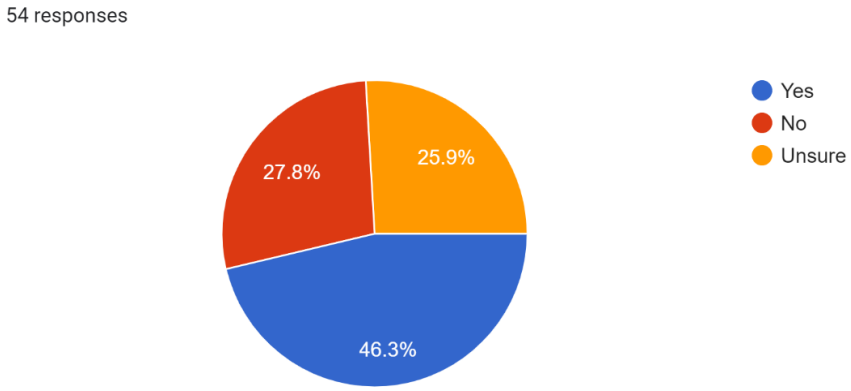
54 responses



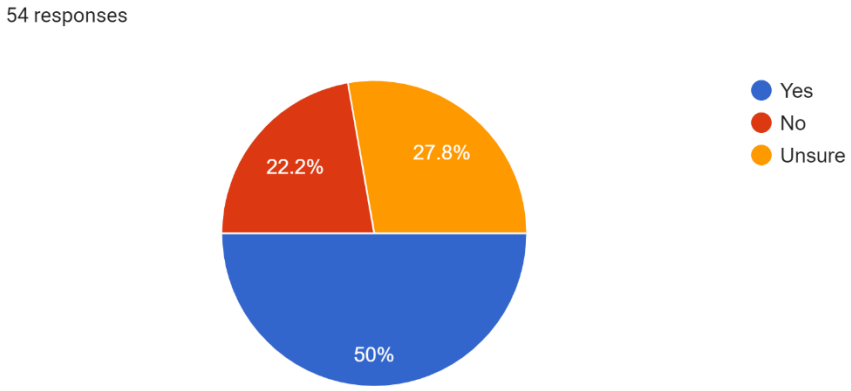
Question 5: Are DFS policies, procedures, and processes designed in such ways that enhance staff and manager performance?



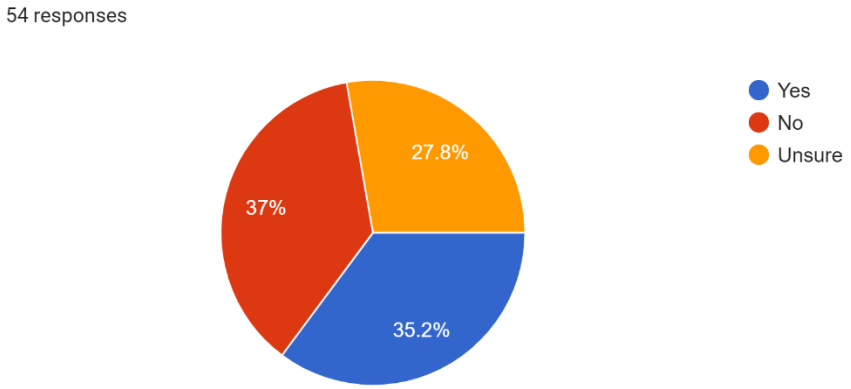
Question 6: Are the motives of the DFS staff and managers aligned with the DFS mission, vision, and values in such ways that the laboratory staff and managers consistently perform their roles to the best of their abilities?



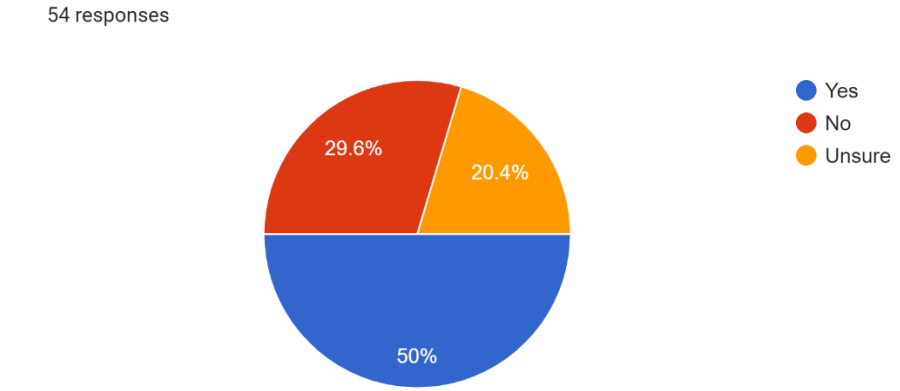
Question 7: Do the DFS staff and managers have the requisite abilities to do what is expected from them for success on the job?



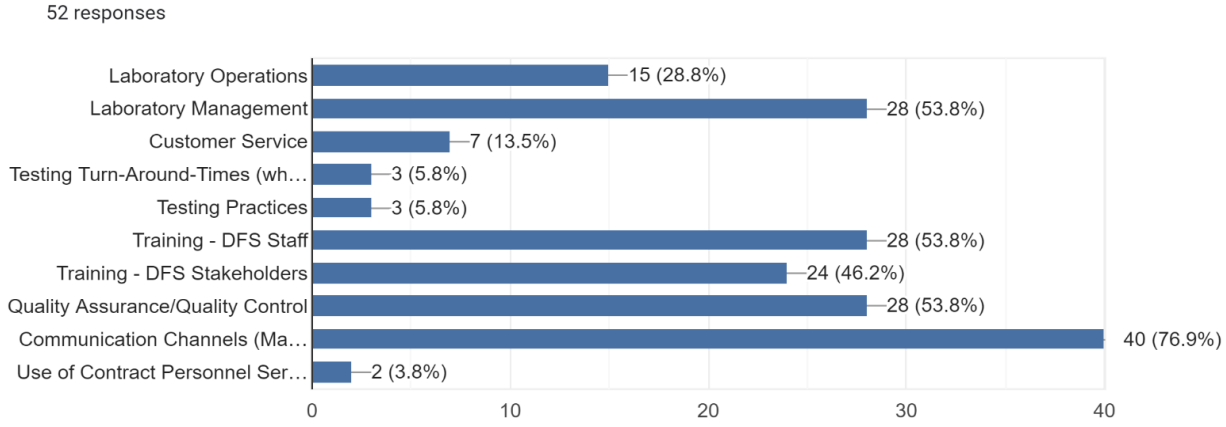
Question 8: Are DFS staff and managers recruited and selected with knowledge, skills, and abilities that meet job duties and responsibilities?



Question 9: Are the DFS staff and managers provided with a systematic training system that provides them with the guidance and instruction necessary to understand their roles and maintain the skills necessary to meet or exceed laboratory standards?



Question 10: If you were provided with the required authorities and resources, where would you make immediate changes to improve DFS laboratory operations and performance (check as many as applicable)?



Appendix D: Gilbert's Behavioral Engineering Model Analysis

Environment

- Information management
  - The communication environment was inconsistent and, at times, delivered as management directives and appeasement responses (either real or perceived).
    - Communication to and among the staff was not always direct, accurate, and timely.
    - Communication from executive leaders was perceived as a tasking function and not a way of sharing ideas, providing guidance, or fostering feedback.
    - Email was used to establish documentation (collecting evidence of issues with people) versus as a way to offer guidance, seek feedback, and work collaboratively.
  - There was an over-abundance of policy, practice, and operating documents among the forensic programs without consistent integration and cooperative authorship.
    - Quality manuals and separate policy documents were generated without cooperative program review and adequate central coordination and deconfliction.
    - Despite the voluminous amount of documents that the DFS used in its business and operations, there was a lack of applicable documentation that guided integrated operations between the Forensic Units and the supporting units (e.g., Quality Unit, Training Unit, Central Evidence Unit and Crime Scene Services Unit).
- Resources
  - The DFS did not consistently and adequately staff programs to address the evolving needs of its customer base.
  - The FBU did not have sufficient staffing to meet the turnaround times required by the USAO.
  - The DFS Training Unit did not possess the resources to manage and support training for the Forensic Units.
    - The Training Unit staff did not receive "train the trainer" education and materials to design, develop, and deliver effective training programs.
    - The FSL lacked a dedicated training and validation laboratory.
- Incentives
  - SNA could not identify an inventory of meaningful and appropriate incentives to consistently promote the desired levels of performance and behaviors that could have improved morale and sustained accreditation.

        - Staff reported their preference for professional development opportunities over DFS promotional merchandise branded with the DFS logo.
        - There was not a consistent, thoughtful balance between positive and negative incentives for properly executing procedures, reporting problems, and suggesting ideas for improving operations.
    - Executive Leadership did not appear to model behaviors or establish dialogues that encouraged strong customer service ethics among the unit managers and staff.
        - Interpersonal relationships between the DFS Executive Leaders and their customers and stakeholders were largely unfavorable.
        - The absence of documentation related to customer surveys and meaningful inquiries about customer needs demonstrates a lack of priority for customer service.

People

- Knowledge and Skills
    - SNA interviews and observations determined that DFS staff skills, abilities, and applied competencies required to perform assigned duties varied notably across position descriptions, established standards, and accreditation requirements.
        - Several of the staff members who transitioned into the DFS from the DC MPD were "grandfathered"[95] into their positions and did not undergo meaningful screening or selection process to determine the presence of desired attributes, values, and beliefs.
        - SNA document review indicated that, during the establishment of the DFS laboratory in 2012, nine of the eleven LFU examiners assessed for skills did not meet the minimum requirements to demonstrate competency and were placed into duty, nonetheless.
        - SNA SME program assessments found that examiners in the FEU did not have the knowledge to correctly perform targeted comparisons of specimens known to have been fired in the same firearm as well as specimens known to have been fired in different firearms.
- Capacity[96]
    - The DFS Executive Leadership did not demonstrate the consistent capacity and capability to successfully manage forensic laboratory business, operations, and human resources practices; SNA observed inconsistent performance in the areas of business decisioning, relationship building with clients, and a lack of the ability to identify problems within the laboratory.

[95] MPD staff transitioning into the DFS were exempt from a formal screening process.
[96] The ability for staff to learn and do their jobs.

        - SNA SME program assessments found that the Quality Unit staff did not possess the requisite skills, abilities, or attributes to properly operate a forensic quality program according to laboratory needs, policies, and standards.
        - The DFS working environment contributed to emotional challenges and stress for staff members that likely inhibited the staff's ability to perform their duties in line with prevailing forensic laboratory operational standards.
    - SNA program reviews assessed that the DFS human resources approach did not exhibit the capacity to properly recruit, select, and match employees to workplace requirements.
        - The DEU Forensic Scientist Manager job description does not describe the former manager's major functions in managing the DFS information systems.
        - The LFU Forensic Scientist Manager job description required the individual to have a mastery of knowledge of the entire latent print skill set; however, the SNA review found that the former LFU manager's expertise was only in the development of latent prints.
- Motives
    - SNA interviews and program reviews indicated a misalignment between the DFS Executive Leadership's values and the expectations of their clients. As a result, the DFS became increasingly insular in its business approach, which further diminished the DFS' ability to identify and meet their customer's needs while also meeting the demands of the working environment.
        - The DFS Executive Leadership did not appear to adequately investigate customer complaints, thereby possibly creating an appearance of indifference.
        - The DFS Executive Leadership, and as a result, the laboratory as a whole, declined to honor the requests from the USAO for matters pertaining to discovery needs.
    - SNA interviews determined that DFS Executive Leadership became disconnected from the workforce and customers.
        - The geography of the workplace made it difficult for the Director to engage with the workforce and widened the chasm between the leaders and Forensic Operations staff.
        - DFS Executive Leadership's decision to not fill the Deputy Director position but create a Senior Deputy Director position resulted in confusion and increased stress among the forensic staff.
        - DFS Executive Leadership was not aligned with the beliefs and needs of the staff and customers, which led to fragmented communications

throughout the DFS organization, and further straining the relationship with the USAO.

- SNA interview results indicated that some DFS staff routinely reported to work but did not consistently perform their assigned duties.
  - SNA interviews reflected that various staff members were not held accountable for performing their assigned duties which negatively impacted morale among the staff.
  - SNA program reviews discovered FEU and LFU that contract staff members processed disproportionately more casework than DFS staff employees.

Appendix E: Events leading to the 2021 Withdrawal of ISO/IEC 17025:2017 Accreditation

A specific event involving the misidentification of two cartridge cases related to a National International Ballistic Information Network (NIBIN) Lead was attributed, in part, to the cascading series of events leading to the 2021 withdrawal of accreditation.[97] The two items involved in the misidentification were DFS 15-00253, Item 45, and DFS 15-00673, Item 16. DFS FEU Examiner Daniel Barrett examined these items and concluded the two items were fired in the same firearm. DFS FEU Firearms Examiner Luciano Morales conducted a secondary review of this evidence, affirming Mr. Barret's findings. Subsequently, Mr. Barrett left the employment of the DFS, resulting in a re-examination of the items by DFS FEU Examiner Alicia Vallario. Alicia Vallario's independent examination supported the original determination that the two cartridge cases were fired in the same firearm. DFS FEU Examiner Michael Mulderig conducted a secondary review following Ms. Vallario's analysis; Michael Mulderig also agreed that the two cartridge cases were fired in the same firearm. At this point, four examiners had independently reached the same conclusion.

When Travis Spinder and John Murdock (external firearm examiners hired by the USAO) independently raised concerns about a possible misidentification, the DFS again directed a re-examination of the two cartridge cases. A fifth DFS FEU examiner, Elizabeth Bustamante, independently concluded an identification was warranted. Elizabeth Bustamante based this conclusion on multiple firearm-produced marks on the cartridge cases. Two additional DFS FEU Examiners (Jonathan Fried and Ashley Rachael) also examined the two cartridge cases associated with each of the two DFS Cases. Based on their comparisons, each concluded an elimination; that is, the two sample items were not fired from the same firearm. With a total of seven DFS FEU examinations conducted on the same two cartridge cases, five examinations resulted in identifications indicating the two cartridge cases were fired in the same firearm, and two examiners concluded the data supported an elimination, indicating the two cartridge cases were fired from different firearms. These findings were presented to FEU management in a PowerPoint presentation in April 2020.[98] Following this administrative review, the DFS determined the results to be inconclusive.

Prior to SNA's assessment, an external team of experts (Bruce Budowle, James Carroll, and Todd Weller), referred to as the USAO Firearms Review and Audit Team, investigated

[97] A NIBIN Lead is associated with ballistic imaging technology that is established within the DFS. Fired cartridge cases from crime scenes are imaged using ballistic imaging technology and then correlated against a database of previously acquired fired cartridge cases. The results are reviewed by the Bureau of Alcohol, Tobacco, Firearms and Explosives NIBIN National Correlation and Training Center. If there are cartridge cases that demonstrate sufficient similarity, the results are returned to the submitting agency in the form of a NIBIN Lead. This is designed for investigative purposes only and this lead must be evaluated on a comparison microscope by a firearm examiner to determine its validity.
[98] SAB_Meeting_Presentation_4.17.20, Slides 43-81.

issues related to the cartridge case misidentification conclusions. Their findings were discussed in the McLeod DFS court filing[99] of March 22, 2021, findings and conclusions with which SNA concurs. Table E-1 below summarizes the examinations/evaluation/conclusions that were rendered when comparing the cartridge casing(s) from DFS cases DFS 15-00253 and DFS 15-00673.

Table E-1: Examinations and Conclusions of DFS cases 15-00253 and 15-00673

Approximate Date of Examination	Conducted By	Items Compared	Reason for Comparison	Conclusion
1/26/2016	Daniel Barrett (DFS)	DFS 15-00253, Item 45, and DFS 15-00673, Item 16.	Initial examination	Identification
1/28/2016	Luciano Morales (DFS)	DFS 15-00253, Item 45, and DFS 15-00673, Item 16.	Secondary review of Daniel Barrett's examination	Identification
8/8/2017	Alicia Vallario (DFS)	DFS 15-00253, Item 45, and DFS 15-00673, Item 16.	Re-examination after Daniel Barrett's departure from DFS	Identification
8/8/2017	Michael Mulderig (DFS)	DFS 15-00253, Item 45, and DFS 15-00673, Item 16.	Secondary review of Alicia Vallario's examination	Identification
1/4/2020	Travis Spinder	DFS 15-00253, Items 27, 28, 29, 33, 35, 36, 38, 41, 43, 44, 45, 51 and DFS 15-00673, Items 1, 5, 7, 8, 12, 13, 14, 16, 19, 20, 21, 22, 23, 43, 50, 51	Independent examiner hired by USAO to review the case	Elimination
2/3/2020	John Murdock	DFS 15-00253, Items 27, 28, 29, 33, 35, 36, 38, 41, 43, 44, 45, 51 and DFS 15-00673, Items 1, 5, 7, 8, 12, 13, 14, 19, 20, 21, 22, 23, 43, 50, 51	Second independent examination commissioned by the USAO	Elimination
2/4/2020	Todd Weller	DFS 15-00253, Items 27, 28, 29, 33, 35, 36, 38, 41, 43, 44, 45, 51 and DFS 15-00673, Items 1, 5, 7, 8, 12, 13, 14, 19, 20, 21, 22, 23, 43, 50, 51	Verifier for John Murdock	Elimination

[99] Superior Court of the District of Columbia-Criminal Division-Felony Branch, United States of America v. Rondell McLeod, 03/22/2021.

Approximate Date of Examination	Conducted By	Items Compared	Reason for Comparison	Conclusion
4/30/2020	Johnathan Fried/Ashley Rachael (DFS)	DFS 15-00253, Items 41 and 45, and DFS 15-00673, Items 7 and 16.	Examined as part of the complaint investigation and reported in a PowerPoint presentation to the DFS management[100]	Elimination
5/1/2020	Elizabeth Bustamante (DFS)	DFS 15-00253, Item 45, and DFS 15-00673, Item 16.	Examined as part of the complaint investigation and emailed results to Jonathan Pope[101]	Identification
5/1/2020	Michael Mulderig (DFS)	Evaluated the photographs of items 45 and 16.	Michael Mulderig met with Jonathan Pope and Jonathan Fried, changing his 8/8/2017 identification to inconclusive in an email to Jonathan Pope.[102]	Inconclusive
5/27/2020	Jonathan Fried/Ashley Rachael (DFS)	No items compared at this time.	Only a report was issued. The report was based on the 4/30/2020 comparison and the initial elimination conclusion of 4/30/2020 was reported as inconclusive.	Inconclusive
6/7/2020	John Murdock	DFS 15-00253, Item 45, and DFS 15-00673, Item 16.	Re-examination to include DFS 15-00673, Item 16 not previously submitted to Murdock.	Elimination
6/8/2020	Todd Weller	DFS 15-00253, Item 45, and DFS 15-00673, Item 16.	Verifier for John Murdock.	Elimination

[100] "Confidential Case Review" PowerPoint by Ashley Rachael and Jonathan Fried dated April 30, 2020, presented internally to upper management.
[101] "[Ex 34] Email from Bustamante to Pope dated 5.1.2020 w photos attached" Elizabeth Bustamante to Johnathan Pope with the subject line "comparison results".
[102] "05-01-2020 E-mail sent at 300 pm" from Michael Mulderig to Jonathan Pope with the subject line "Case review".

Appendix F: Information on Supporting Advisory Bodies Currently in the US

The following table describes the roles that other forensic laboratory Science Advisory Boards perform.

Table F-1: Forensic Science Advisory Boards

Advisory Board	Comments
Arizona Forensic Science Advisory Committee Established: **2008** Overseen by: **Arizona Office of the Attorney General** Authority: **Statewide** https://www.azag.gov/criminal/azfsac[103]	This Committee was not created through statute or legislation; the Arizona Attorney General's Office established a Forensic Science Advisory Committee to enhance and advance forensic laboratory science services within Arizona. Specifically, the Committee was formed after a recommendation from another organization, the DNA Task Force. The Committee's main tasks include connecting various criminal justice system members (attorneys, scientists, law enforcement, etc.) and the public to discuss and collaborate on different issues. These include standardizing forensic protocols and exchanging ideas on forensic science and criminal science justice policy. A significant accomplishment of the Committee was creating the Arizona Forensic Science Academy, which allows forensic scientists to educate attorneys on forensic science basics.
Arkansas State Crime Laboratory Board Established: **2015** Overseen by: **Arkansas State Crime Laboratory** Authority: **Statewide** https://law.justia.com/codes/arkansas/2015/title-12/subtitle-2/chapter-12/subchapter-3/section-12-12-302.[104] https://www.cji.edu/who-we-are/advisory-board/[105] ttps://encyclopediaofarkansas.net/entries/arkansas-state-crime-laboratory-6879/[106]	The Arkansas State Crime Laboratory is outlined in the 2015 Arkansas Code in Subchapter 3 § 12-12-302. Legislation dictates that the Board be composed of one Governor-appointed member of each of the following communities: active judiciary; legal profession; active county sheriff; active chief of police; active prosecuting attorney; two active private or academic physicians; and one elected state official. The Board currently is composed of representatives from several different Arkansas police departments, colleges, universities, and the Federal Bureau of Investigation. The Board's primary goal is listed to enforce and spread rules, policies, and regulations.

[103] Accessed on November 18, 2021.
[104] Ibid.
[105] Ibid.
[106] Ibid.

Advisory Board	Comments
California Crime Laboratory Review Task Force Established: **2007** Overseen by: **California Office of the Attorney General** Authority: **Statewide** https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=PEN&sectionNum=11062[107] https://oag.ca.gov/sites/all/files/agweb/pdfs/publications/crime_labs_report.pdf[108]	This body no longer exists. California enacted legislation in 2007 for the creation of the California Crime Laboratory Review Task Force. The Task Force's goal was to make recommendations for structuring and funding crime laboratories in California. Additionally, a comprehensive survey was conducted, and numerous public meetings were held over two years at different crime laboratories. From this, a comprehensive report was issued in 2009 recommending, among other items, analyst certification and accreditation of laboratories. They also recommended the creation of a statewide entity, stating that the most effective method of handling laboratory issues would be different jurisdictions coordinating issues. The Task Force was set to issue a supplemental report the following year. However, this report was never published, and no state commission was created.
Delaware Commission on Forensic Science Established: **1988** Overseen by: **Delaware Division of Forensic Science** Authority: **Statewide** https://casetext.com/statute/delaware-code/title-29-state-government/chapter-47-forensic-science/section-4714-commission-on-forensic-science[109] https://forensics.delaware.gov/resources/index.shtml?dc=forensic-science[110]	The Delaware Commission on Forensic Science collaborates with Delaware's Division of Forensic Science, which has two branches in Wilmington and Georgetown. The Commission was established by Senate Bill 241 according to Title 29 Chapter 47 §4714. The Governor appoints the Commissioners consisting of 10 members from the Department of Health and Social Service, the Department of Safety and Homeland Security, the Delaware State Senate, the Delaware House of Representatives, the Delaware Police Chiefs Council, and the Delaware State Troopers Association or the Fraternal Order of Police with forensic science training. Additional members include the Attorney General and the Chief Defender, both of whom can designate a person in their stead to represent them, and two members who have expertise or training in forensic science. The Commission provides guidance to foster professionalism, development, and growth of the Delaware Division of Forensic Science.

[107] Accessed on November 18, 2021.
[108] Ibid.
[109] Ibid.
[110] Ibid.

Advisory Board	Comments
Houston Forensic Science Center Board of Directors and Technical Advisory Group Established: **2014 was the establishment of the Houston Forensic Science Center** Overseen by: **Houston Forensic Science Center** Authority: **Citywide** https://www.houstonforensicscience.org/about-us.php[111]	The Houston Forensic Science Center Board of Directors has nine members appointed by the Houston Mayor and confirmed by the City Council. A majority of the Directors are residents of the City. In the aggregate, the Directors are qualified to govern a forensic science center and to provide guidance regarding forensic science issues from the perspectives of science, law enforcement, public policy, business, persons accused of crimes, and the general public. The Board receives guidance when necessary from a Technical Advisory Group, whose members are primarily scientists.
Illinois Forensic Science Commission Established: **2021** Overseen by: **Illinois State Police** Authority: **Statewide** https://trackbill.com/bill/illinois-senate-bill-666-forensic-science-commission/2048265/[112] https://illinoissenatedemocrats.com/caucus-news/45-senator-patricia-van-pelt-news/2977-illinois-to-permanently-establish-forensic-science-commission[113]	The Commission, recommended by the Governor's Task Force on Forensic Science in 2020,[114] was established by law as part of the *Forensic Laboratory Impact Note Act* to help further reduce the existing DNA backlog and be a forum for discussions between stakeholders. The goals are to allow the state laboratory to monitor and address critical issues and ensure efficient forensic science practice and services delivery. The members include a crime laboratory director or administrator from each publicly-funded forensic laboratory system; One member with experience in the admission of forensic evidence in trials from a statewide association representing prosecutors; One member with experience in the admission of forensic evidence in trials from a statewide association representing criminal defense attorneys; Three forensic scientists with benchwork background from various forensic disciplines (e.g., DNA, chemistry, pattern evidence, etc.); One retired circuit court judge or associate circuit court judge with criminal trial experience, including experience in the admission of forensic evidence in trials; One academic specializing in the field of forensic sciences; One or more community representatives (e.g., victim advocates, innocence project organizations, sexual assault examiners, etc.). The Governor designates one of the members of the Commission to serve as the chair.

[111] Accessed on November 18, 2021.
[112] Ibid.
[113] Ibid.
[114] Ibid.

Advisory Board	Comments
Maryland Forensic Laboratory Advisory Committee Established: **2007** Overseen by: **Maryland Department of Health and Mental Hygiene** Authority: **Statewide** https://mgaleg.maryland.gov/2007RS/chapters_noln/Ch_147_sb0351E.pdf[115] https://msa.maryland.gov/msa/mdmanual/26excom/html/15forensiclab.html[116]	The Committee was created in 2007 under the Maryland General Assembly Chapter 147, Acts of 2007. Their main goal is to advise the Secretary of Health on promoting regulations that set standards and requirements for the operation of forensic laboratories in Maryland. On December 31, 2011, all forensic laboratories were mandated to be licensed by the Secretary of Health. There are ten members on the Committee; eight members are appointed by the Governor, and two serve ex officio (Code Health-General Article, sec. 17-2A-12).
Missouri Crime Laboratory Review Commission Established: **2009** Overseen by: **Missouri Department of Public Safety** Authority: **Statewide** https://law.justia.com/codes/missouri/2017/title-xl/chapter-650/section-650.059/[117] https://dps.mo.gov/dir/crimelabreviewcommission.php[118]	The Missouri Crime Laboratory Review Commission was created within Section 650.059 of the Missouri Revised Code. It was established to provide an impartial and independent review of state and local Missouri crime laboratories receiving state funding. Its mission is to ensure quality management systems within the crime laboratories in Missouri. The Commission is made up of five members: one senior manager from an accredited crime laboratory within the state of Missouri and approved by the Missouri Department of Public Safety, one licensed managing law enforcement officer employed by Missouri, one prosecuting attorney, one criminal defense attorney, and the Director of the Department of Public Safety or their designee or their designated person.
Montana Forensic Science Laboratory Advisory Board Established: **Earliest meetings found online in 2017** Overseen by: **Montana Department of Justice** Authority: **Statewide** https://leg.mt.gov/bills/mca/title_0020/chapter_0150/part_0010/section_0220/0020-0150-0010-0220.html[119] https://dojmt.gov/crime/forensic-science-laboratory-advisory-board/[120]	The Montana Forensic Science Laboratory Advisory Board is outlined in Title 2, Chapter 15 of the Montana Code. The Advisory Board has 13 members representing law enforcement, prosecutors, defense attorneys, and the private sector. The Board advises the state crime laboratories. Their tasks include: providing feedback to the Attorney General and crime lab administration on the work the laboratory produces, fostering communication between user agencies and the laboratory, and suggesting improvements to the policies and procedures of the laboratory. The Advisory Board also acts as the designated body to provide independent external investigations into any misconduct allegations

[115] Accessed on November 18, 2021.
[116] Ibid.
[117] Ibid.
[118] Ibid.
[119] Ibid.
[120] Ibid.

Advisory Board	Comments
	that might affect the integrity of the laboratory's forensic results.
New York State Commission on Forensic Science Established: **1995** Overseen by: **New York State Division of Criminal Justice Services** Authority: **Statewide** https://www.nysenate.gov/legislation/laws/EXC/A49-B[121] https://www.criminaljustice.ny.gov/forensic/aboutofs.htm[122]	The New York State (NYS) Commission on Forensic Science was created from Article 49-B of the Executive Law in 1994; the Commission has the authority to develop standards and an accreditation program for all government forensic laboratories in NYS. The Commission collaborates with the New York Crime Laboratory Advisory Committee and various technical working groups of forensic experts from State and local crime laboratories. The Commission has 14 members: Commissioner of the NYS Division of Criminal Justice Services, Commissioner of the NYS Department of Health or designee (ex officio), and 12 members appointed by the Governor. Of those members appointed by the Governor, one shall be chair of the NY Crime Laboratory Advisory Committee, one director of a forensic laboratory in NSYS, director of the NYS Division of Criminal Justice Services Office of Forensic Services, two scientists with experience in laboratory standards or quality assurance regulation and monitoring, one representative of a law enforcement agency, one representative of prosecution services, one representative of the public criminal defense bar, one representative of the private criminal defense bar, two members-at-large, one attorney or judge with a background in privacy issues and biomedical ethics. The Commission meets at least four times per year.
New York State Commission on Forensic Science DNA Subcommittee Established: **1995** Overseen by: **New York State Division of Criminal Justice Services** Authority: **Statewide** https://www.nysenate.gov/legislation/laws/EXC/A49-B[123] https://www.criminaljustice.ny.gov/forensic/aboutofs.htm[124]	Serving the NYS Commission on Forensic Science, the DNA Advisory Board also was created from Article 49-B Section 995-(A-F) of the Executive Law. The subcommittee oversees the technical operations of the government forensic DNA laboratories in NYS. As an example, the DNA subcommittee reviews DNA FBI QAS audits and ISO/IEC 17025 accreditation assessments. The subcommittee advises the Commission on matters related to the procedures for quality assurance in conjunction with the performance of forensic DNA analysis. Currently, the Board has seven members. The NYS Commission on Forensic Science appoints a chair,

[121] Accessed on November 18, 2021.
[122] Ibid.
[123] Ibid.
[124] Ibid.

Advisory Board	Comments
	who appoints six additional members: one representing the disciplines of molecular biology and laboratory standards and quality assurance regulation and monitoring, two forensic scientists, and two population geneticists. The DNA Subcommittee meets at least four times per year.
North Carolina Forensic Science Advisory Board Established: **2011** Overseen by: **North Carolina Department of Justice** Authority: **Statewide** https://law.onecle.com/north-carolina/114-department-of-justice/114-61.html[125] https://ncdoj.gov/crime-lab/forensic-science-advisory-board/[126]	The North Carolina Forensic Science Advisory Board was written into law as North Carolina General Statute § 114-61. The Board has 16 members, consisting of the State Crime Laboratory Director and 15 members appointed by the Attorney General. These appointed members include the Chief Medical Examiner; four forensic scientists, one of each with training or experience in laboratory standards, molecular biology, population genetics, and trace evidence; three scientists separately with training or experience in forensic chemistry, biology, and toxicology; the toxicology expert should also be certified with the American Board of Forensic Toxicologists. Additionally, other members include the director of a private or federal forensic laboratory and a member of each of the following: IAI, AFTE, International Association for Chemical Testing, ASCLD, AAFS, and the American Statistical Association. The Board's job entails reviewing the Crime Laboratory operations and recommending new programs, methods of testing, and qualifications for forensic scientists working in the lab.
Rhode Island State Crime Laboratory Commission Established: **1978** Overseen by: **Attorney General's Office in the State of Rhode Island** Authority: **Statewide** https://casetext.com/statute/general-laws-of-rhode-island/title-12-criminal-procedure/chapter-12-11-state-crime-laboratory-commission[127]	The Rhode Island State Crime Laboratory Commission is laid out in Chapter 12-1 of the Rhode Island General Laws. The Commission works with the Rhode Island State Crime Laboratory. There are five positions on the Board: the Rhode Island Attorney General, Superintendent of Rhode Island State Police, a representative from the Rhode Island Police Chiefs Association, and two public members who must also be approved by the Governor and the Senate. Their goals are outlined in the law, some of which include establishing operating documentation for the state crime laboratory, reviewing efficacy within the laboratory, handling and distributing any grant funding, giving recommendations to the Governor, and providing

[125] Accessed on November 18, 2021.
[126] Ibid.
[127] Ibid.

Advisory Board	Comments
	an annual fiscal report to the Governor, Senate, and House of Representatives.
Texas Forensic Science Commission Established: **2005** Overseen by: **Texas Judicial Branch** Authority: **Statewide** https://www.txcourts.gov/fsc/about-us/[128]	The Texas Forensic Science Commission was enacted in 2005 through Texas legislation. The legislation was expanded in 2013 and 2015 through SB-1238 and SB1287, respectively. The Commission is made up of nine members whom the Governor appoints. It is composed of seven scientists and two attorneys (one prosecution and one defense). The Commission is required to look into any allegations of negligence or misconduct that primarily affect results during evidence examination conducted by the accredited laboratory and the formation of a reporting system for negligence or misconduct. The Commission also engages in new forensic enterprises and collaborates with others in the criminal justice system to increase knowledge about forensic science.
Virginia Scientific Advisory Committee Established: **2005** Overseen by: **Virginia Department of Forensic Science** Authority: **Statewide** https://law.lis.virginia.gov/vacode/title9.1/chapter11/section9.1-1111/[129]	The Virginia Scientific Advisory Committee was legislated in 2005 by the Virginia General Assembly § 9.1-1111. The Committee is made up of 13 members, which include the Virginia Department of Forensic Science Director as well as each of the following: a Virginia forensic laboratory director; three forensic scientists with training and experience in laboratory standards or quality assurance, molecular biology, and population genetics; two scientists with training and experience in forensic chemistry and forensic biology; a forensic scientist with training and experience in trace evidence; a scientist with a doctorate with experience in forensic toxicology and certified by the American Board of Forensic Toxicologists. The remaining members are part of the following organizations: IAI, AFTE, International Association for Chemical Testing, ASCLD, AAFS, and the American Statistical Association. The Committee's tasks entail guiding and advising the Department Director about various subjects, ranging from presenting and implementing scientific methods and protocols to reviewing the qualifications for various occupations in the laboratory. Additionally, the Committee has the authority to review casework done by those in the laboratory to help protect quality assurance.

[128] Accessed on November 18, 2021.
[129] Ibid.

Appendix G: Recommendations for Enhancing the DFS Legislation

The DFS would benefit if the D.C. Law 19-18 DFS Establishment Act is updated[130] to include:

- Provision of authority, independence, and resources to SAB and Stakeholder Council to properly monitor the DFS operations.
- Authorize two separate SABs to advise the FSL (FSAB) and the PHL (PHSAB), whose nominees are vetted and selected by Stakeholder Council.
- Administration of SABs by an agency/individual independent of DFS. This agency/individual will:
    - Set meeting agendas,
    - Receive and monitor nonconformances, corrective actions, and complaints.
- Appropriate resources (personnel and budget) for the SABs and Stakeholder Council to draft agendas, review nonconformances for the SAB, track the effectiveness of corrective actions and complaints, conduct investigations, and hire outside SME experts as needed. All customer complaints, nonconformances, and Q-CARs are brought before the SAB, which provides oversight and:
    - Has access to the appropriate documents to evaluate the issue fully.
    - Are informed and approve of the root cause.
    - Can conduct independent investigations using outside experts.
    - Approve resolution and closeout.
    - Has authority to recommend, approve or disapprove policies and procedures.
- Redefinition of the Forensic SAB (new SAB) membership to include nine members:
    - Minimum of two forensic scientists with managerial and technical experience representing each Forensic Unit/discipline of the FSL with a minimum of one being recently experienced as a lead forensic ISO/IEC 17025:2017 assessor.
    - Eliminate the DC residency requirement[131]
    - One quality manager with experience in ISO/IEC 17025:2017.
    - Minimum of one human factors expert.
    - At least one legal representative.
    - Member from the Stakeholder Council.
- Redefinition of DFS Director to an Executive Director with qualifications (Sec. 4) to include:
    - (b) The Executive Director shall be familiar with forensic science services. The Executive Director shall have:

[130] This is a preliminary list of recommended changes. The Evaluation Committee should conduct a detailed review of D.C. Law 19-18 DFS Establishment Act and make other necessary changes.
[131] https://motaboards.applytojob.com/apply/stQy3E/Science-Advisory-Board.

        - Graduated from an accredited College or University with a Master's degree or higher in an applicable area of science, law, or business.
        - Demonstrated management and administrative skills specifically in the public sector and preferably in the DC government.
        - A minimum of five years' experience supervising government agency employees, preferably agencies larger than 75 people.
    - Redefinition of Sec. 5. Duties of the Executive Director to include:
        - Be responsible for the management and operation of the Department.
        - Ensure that accreditation is obtained in compliance with section 7(d).
        - Ensure that accreditation is maintained in compliance with section 7(d).
        - Advise the SAB (and PHSAB) on quality operations, including:
            - Addressing any allegation of professional negligence, misconduct, misidentification, or other testing error that occurs in the provision of forensic science services within the Department.
            - Tracking of nonconformances, corrective actions, and complaints to ensure they are resolved appropriately.
            - Conducting investigations (as needed).
            - Providing documents and information as requested.
- Redefinition of the Deputy Director position to a Chief Forensic Science Officer. The Chief Forensic Science Officer shall have a Master's or Doctoral degree in an applicable area of science or forensic analysis, a minimum of ten years working in a forensic laboratory, and five years' experience directing forensic laboratories.
- Sec. 7. Powers and duties of the Department, Section (h) (3) includes a comprehensive list of documents and records that will be readily available in real-time to the prosecution and defense via a web portal.[132]

[132] See Section 4.1.8 Data Management for more on the data management portal.

Appendix H: Sample Monthly Management Meeting Agenda

Meeting Title
Meeting Date and Time

1) Last Month's Activities
   a) Changes in internal procedures and external customer forensic service requirements that impact forensic operations
   b) Changes in the volume and type of the work or in the range of laboratory activities such as number of case submissions, items per case per discipline that either decrease or increase turnaround times

2) Forensic Operations
   a) Objective evidence that supports the fulfillment of objectives
   b) Suitability of policies and procedures towards meeting customer forensic service requirements
   c) Effectiveness of any implemented improvements due to staff input, Q-CARs, Q-PARs, or customer feedback measured with efficiency and effectiveness metrics
   d) Adequacy of resources such as staffing, instrumentation, and support services (clerical, quality, training, and legal)
   e) Results of risk identification including monitoring of high-risk procedures and opportunities to implement new technologies
   f) Outcomes of the assurance of the validity of results, including validation of equipment, methods, and authorizations of personnel to perform SOPs

3) Management Reviews, Audits, nonconformances, and Corrective Actions
   a) Status of action items from previous management reviews
   b) Outcome of recent internal audits including nonconformances for all units
   c) Corrective actions, including data for root cause analyses
   d) Assessments by external bodies such as ANAB and FBI QAS audits

4) Feedback
   a) Customer and personnel feedback, both negative and positive, and evaluation for opportunities for improvement
   b) Complaints from customers on quality and timeliness of forensic services

5) Staffing
   a) Personnel turnover and retention
   b) Recruitment status
   c) Professional development and training

6) Next Steps
   a) Action Item/Owner/Deadline
   b) Next meeting

Appendix I: Executive Leadership Nonconformance with ISO/IEC 17025:2017 Forensic Laboratory Accreditation Requirements

Table I-1: Executive Leadership Nonconformance – Policies and Objectives

Requirement:
ISO/IEC 17025 8.2.1 [redacted]
ISO/IEC 17025 8.2.2 [redacted]
ISO/IEC 17025 8.2.3 [redacted]

Observed State:

- The DFS Laboratory did not consistently operate in accordance with its own QAM[133] goals (QAM goals italicized):
  - *An ongoing dialogue with the law enforcement and legal communities regarding services provided by the FSL. This includes maintaining open lines of communication on active casework as well as the transmission of policies, procedures and new forensic technology which impact evidence processing and analysis.* - Structured interviews with the USAO and PDS revealed a lack of constructive dialogue with the DFS Director and General Counsel.
  - *A case prioritization system which takes into account the needs of the DC's Criminal Justice System. It is the intent of the FSL to meet court and investigative time frames regarding the processing of evidentiary items. The analysis of specific items will be given priority when needed to answer particular legal or investigative issues.* - Structured interviews with the USAO revealed that the FBU was not meeting their needs with regards to having reports in time for court dates.
  - *The management and staff commit to providing a work product which is unbiased, scientifically objective and responsive to the needs of the DC's Criminal Justice System.* Reviews of FEU casework, LFU casework, and DEU records by subject matter experts raised concerns over some of their analysis reports.
  - *All personnel work to maintain an integrated approach to the evaluation of case material.* - Structured interviews of staff and the follow-up of a customer complaint revealed an environment where Forensic Unit operations did not collaborate on inter-unit dependent tasks.
- The DFS did not consistently operate in accordance with its own QMS requirements.
  - The DEU Lead Forensic Scientist position prerequisite of seven years of relevant experience in Digital Evidence at the Forensic Scientist III level or equivalent conflicted with the DEU Lead Forensic Scientist's prior experience of three years of relevant experience and less than two years at the Forensic Scientist III level or equivalent. DFS was not following its own policy on hiring staff as stated in 6.2.5.2. Selection of Personnel[134] of the FSL and DEU QAMs.
  - DFS had a security policy in FSL QAM Section 6.3.4 and a procedure in DOM01 Section 4.2.4 that were not followed.

[133] FSL Quality Assurance Manual ISO_IEC 2017 Document Control Number: 10164 Revision: 2 Issuing Authority: Director Issue Date: 7/29/2019 6:59:59 PM.
[134] Personnel must meet position description requirements and undergo selection process established by the District of Columbia Human Resources Agency.

Macro Root Cause Effects:

- Executive Leadership did not establish a professional dialogue with the law enforcement and legal community that supported trust and understanding DFS capabilities.
- Executive Leadership was unable to provide adequate FBU productivity (cases analyzed per month) with the high quality required by USAO.
- Executive and Intermediate Leadership did not facilitate quality casework from FEU and LFU and did not require the application of current technologies in DEU.
- Forensic Units did not collaborate on multi-discipline inter-unit dependent tasks (e.g., CEU shipping bio-evidence without proper packaging to maintain cool and dry conditions limiting biodegradation of evidence as required by FBU).
- Executive and Intermediate Leadership did not hire staff with the requisite experience.

Desired State:

- Executive Leadership establishes a dialogue with law enforcement and legal communities resulting in court acceptance of the best science applied to the best evidence. See Recommendation for Ombudsman position in Section 4.1.7 Independence and Customer Service.
- Executive and Intermediate leadership establish and sustain FBU forensic capabilities (cases/items analyzed per month) required by law enforcement and the legal community.
- Executive and Intermediate Leadership establish a competent FEU, LFU, DEU staffing model that provides quality and timely forensic analyses.
- Executive and Intermediate leadership incentivize all operational staff to work together collaboratively to ensure all policies and procedures are followed and to ensure quality work products.

Corrective Action Steps:
Executive Leadership:

- Meet regularly with customers to determine testing and courtroom testimony requirements.
- Conduct a needs assessment to determine resource requirements versus funding/resources available to the lab.
- Recruit, select and train to competency staff for the FEU and rehabilitate the LFU and DEU staff. Provide appropriate staffing to meet FBU customer requirements.
- Establish policies and procedures that establish and define responsibilities for inter-unit collaborations.
- Chief Forensic Science Officer and Technical Leaders should work to determine the qualifications required to meet the roles and responsibilities of the job positions. Work with Human Resources to ensure all candidates meet the experience job requirements before making an offer of employment.

Table I-2: Executive Leadership Nonconformance – Risks and Opportunities

Requirement:
ISO/IEC 17025 8.5.1 [redacted]

ISO/IEC 17025 8.5.2 [redacted]

ISO/IEC 17025 8.5.3 [redacted]

Observed State:

- The Quality Manual and DOM09 Annual Management Reviews stated a risk analysis shall be performed but lacked a procedure defining responsibilities and how to perform a risk analysis.
- The 2020 Annual Management Review Report incorrectly stated there were no risk issues in FBU, FEU, LFU, and DEU[135], contrary to SNA assessment observations.
- The Quality Manager was unable to provide any data or records to support a risk or opportunity analysis and statements in the 2020 Annual Management Review Report.
- Interviews with the Interim Quality Manager revealed recent attempts to perform risk analyses and the need for guidance, procedures, and training to perform risk analyses.
- DFS did not adequately consider the risks and opportunities associated with the laboratory activities in order to:
  - Identify and document immediate and long-term risk factors that can or will impact laboratory operations;
  - Enhance opportunities to achieve the purpose and objectives of the laboratory;
  - Prevent, or reduce, undesired impacts and potential failures in the laboratory activities;
  - Implement action plans to address identified risks and opportunities;
  - Integrate and implement these actions into a recognized risk management system;
  - Evaluate and report the effectiveness of laboratory risk management actions.
- DFS did not adequately take action to address risks and opportunities in proportion to the potential impact on the validity of laboratory forensic practices and test results.

Macro Root Cause Effects:

Executive and Intermediate Leadership:

- Tended to be reactive rather than proactive monitoring in nonconformances.[136]
- Lacked required formal training and support for performing sustained risk and opportunities analyses.
- Preferred to resource and validate cutting edge technologies (next generation sequencing) before established technologies were applied in a timely and quality manner (DEU, FEU, LFU).

Desired State:

DFS establishes staffing, policies, and procedures to manage risk (see Section 5.1: Risk Analysis).

- DFS has a Risk Management Unit led by a Risk Manager under the Chief Quality Officer (See Section 4.1.3 DFS Leadership Organization) where risk policies and procedures are developed and integrated within the QAM to clearly assign duties and responsibilities for all staff as appropriate.
- Risk is defined as the frequency of task times consequence of the nonconformance. The Risk Manager works closely with the Quality Support Manager, Training Manager, and Unit Managers to identify SOP's frequency of use and consequence of nonconformance. For example, assess FEU staff for eye fatigue caused by microscopic examination.

[135] The report stated: "XIII.Results of Risk Identification. Forensic Science Laboratory: Firearms Examination Unit (FEU), Forensic Biology Unit (FBU), and Latent Fingerprint Unit (LFU)• FEU, FBU, and LFU have not identified any internal or external risks that impact impartiality of testing or influence their processes or work product. ii. Senior Deputy Director Office (SDD): Digital Evidence Unit (DEU)• The DEU has not identified any internal or external risks that impact impartiality of testing or influence the DEU's processes or work product."

[136] Risk is defined as frequency times consequence. Therefore, the high frequency and high consequence tasks exhibit the greatest risk and should be monitored more closely for nonconformance.

- High-risk SOPs (including low likelihood and high impact risk SOPs) are selected for frequent internal assessments to detect nonconformance and immediate corrective action and preventive actions as appropriate to prevent a recurrence.
- Opportunities Policies and procedures are also developed and integrated within the QAM to clearly assign duties and responsibilities for all staff as appropriate.
- Opportunities are defined as new technologies, instrumentation, software, or procedures that have the potential to increase laboratory effectiveness and efficiency. Opportunities come with a cost in terms of personnel time to assess advantages and disadvantages and fiscal impact on operations budget.
- Opportunities require thorough cost-benefit analyses to estimate improvements in efficiency and the effectiveness of laboratory operations.

Corrective Action Steps:

- Allocate resources to establish a senior management position responsible for a formalized Risk Management component.
- Develop a Risk Manager job description that is reflective of all laboratory activities.
- Recruit and select a Risk Manager with appropriate qualifications and experience.
- Conduct a needs assessment to determine the correct number and type of staff vs. available funding/resources to provide appropriate staff support for the Risk Management Unit.
- Risk Management Unit[137] works closely with the Chief Forensic Science Officer, Unit Managers, and Quality Support Management to
  - Conduct a needs assessment to determine the resource requirements to staff the risk unit accordingly.
  - Categorize laboratory activities by levels of risk.
  - Monitor high-risk activities for compliance with forensic ISO/IEC-17025:2017 and customer requirements.
  - Engage and incentivize all staff to identify risk.

Table I-3: Executive Leadership Nonconformance – Internal Audits

Requirement:
ISO/IEC 17025 8.8.2 [redacted]

Observed State:

- Auditor training was minimal or non-existent (DFS DOM06 Internal Audits places responsibility for the internal and external audit program with the QA Specialist and Deputy Director).
- DOM06 is basic and does not specify criteria and scope for audits.
- Audit plans were minimal and did not address high-risk laboratory operations or recurring nonconformances.

[137] For this unit to be successful, there must be a clear establishment of authorities, reporting relationships, and operational relationships where this unit is called upon to provide documented risk analysis and concurrence for accepted risk resolution strategies, plans, and courses of action. This unit is not intended to serve in a consultative role.

Macro Root Cause Effects:
- The internal DFS auditors did not routinely assess the technical casework details such as technical review and verification, and therefore missed opportunities to improve operations.
- The internal audits did not identify recurring nonconformances and Q-CARs (e.g., inadequate case records) and did not initiate a Q-CAR for the ineffectiveness of the internal assessments.

Desired State:
- Internal auditors are trained, skillful, and independent of the unit being audited.
- Audits are planned to include vertical operations from top management through bench examiners, horizontal operations across all units, and micro audits of individual cases and examiner interviews.

Corrective Action Steps:
DFS management:
- Encourages and supports staff to actively engage in accrediting body assessor training and assessments of other laboratories gaining insights on assessment best practices and contacts with experienced assessors.
- Selects and trains auditors from all units.
- Provides certified internal auditor training by independent external providers.
- Ensures the audit program collaborates with the Risk Management Office to identify risks and target high-risk operations such as forensic human identification technologies (FBU and LFU) and adequacy of DFS' capabilities to meet customer requirements.
- Performs a needs assessment to identify staffing and support services required for the Quality Support Unit.

Table I-4: Executive Leadership Nonconformance – Management Reviews

Requirement:
ISO/IEC 17025 8.9.2 [redacted]

Observed State:
- Issues raised by external stakeholders and were incorrectly categorized as Internal/External issues and incomplete instead of corrective actions and complaints:
  - The January 17, 2020 complaint from Mr. Michael Ambrosino was wrongfully listed under "changes in Internal/External Issues" instead of "complaints."
  - USAO Jessie Liu's (Fraud and Public Corruption Section) letter dated January 31, 2020 alerted the DFS to a USAO criminal investigation. This letter should have been treated as a complaint.[138]
  - An FEU contractor was removed from casework due to nonconformances and only 20% of the contractor's casework was reviewed.
- Risks and Opportunities were not identified.

Macro Root Cause Effects:
- DFS 2020 Annual Management Review report did not address all ISO/IEC 17025 8.9.2 and 8.9.3 requirements and supporting data.

[138] 2020 Annual Management Review Report dated 12Aug2020, Liu letter informed the Fraud and Public Corruption Bureau of the USAO opened a criminal investigation into alleged criminal conduct by employees of the MPD and DFS. This letter was listed incorrectly as "changes in internal or external issues' and should have been treated as a complaint.

- Risk identification was not supported by detailed procedures, authorizations, responsibilities and records.
- Training was not provided for risk and opportunity identification and subsequent remediation.

Desired State:

- Management Review is conducted monthly following all categories for 8.9 Management Review.
- Monthly reviews are compiled to form the Annual Review.
- All findings for Management Review are supported by objective evidence and records.
- Policies and procedures clearly define effectiveness metrics for the management system.
- Risk assessment is an integral component of Management Review.

Corrective Action Steps:

DFS management design, develop and implement a policy and procedure for conducting Annual Management Reviews to include all ISO/IEC 17025:2017 8.9 requirements:

- Authorities and responsibilities are clearly defined in the new procedures.
- All categories require objective evidence to support management activities.

Appendix J: Training Courses

Customer Service

DC Department of Human Services CLD Virtual Course Series (October 2021):

- Quality Customer Care WebEx
- Managing Up
- Designing Change Management
- Principles of Management MSS

Coursera offers:

- Customer Service Fundamentals
- Branding and Customer Experience

EdX offers:

- Culture of Services: Paradox of Customer Relations
- Culture of Services: New Perspective on Customer Relations

Leadership/Management

American Society of Quality offers training on:

- Certified Quality Auditor
- Certified Manager of Quality / Organizational Excellence
- Certified Quality Improvement Associate
- Six Sigma Green Belt
- Risk Management Specialized Credential

American Society of Crime Laboratory Directors Symposium - This annual meeting focuses on forensic laboratory management issues.

Master of Business Administration (MBA) courseware. Managers enroll as non-matriculated students and take selected courseware directly applicable to job duties and consider applying to the MBA degree program. Some courses directly related to laboratory management:

- IT management
- Strategic Human Resources
- Statistics for managers
- Fiscal management
- Operations management
- Presentation skills
- Leadership
- Change management
- Communications

DC Government Training offers several Training and Professional Certification courses available to DC employees available via PeopleSoft and should be mandated to supervisory DFS personnel, such as:

- Management Supervisor Service (MSS) Learning and Development program
- Certified Public Manager (in partnership with George Washington University)
- Strategies to Motivate Teams
- Managing Up
- Designing Change Management
- Principles of Management
- Performance Management
- Train the Trainer & ISD

Online Courses: There are several free online courses

- Coursera
- EdX

DC Area Leadership-Management Academic programs:

- George Washington University - Graduate Certificate in Management Leadership
- George Washington University - Graduate Certificate in Project Management

Quality

- American Society for Quality (ASQ) online training: https://asq.org/training/catalog#
- ANAB training: https://anab.ansi.org/training/forensic
- A2LA training: https://mktg.a2lawpt.org/l/273522/2020-07-22/3z73nyt
- ISO/IEC 17025 training:
  - https://www.a2lawpt.org/17025-training-courses
  - https://www.ansi.org/education/activities/standards-training-courses-webinars
  - https://anab.ansi.org/training/17025/intro

Risk Management

Online Courses:

- ANAB ISO/IEC 17025 Training Course: Risk-Based Thinking for Forensic Service Providers
- Coursera - Managing Project Risks and Changes
- EdX - Risk Management for Projects
- Skillsoft Percipio - Managing Risk

Train the Trainer

George Washington University - Course Content Outline for the Master Teacher Leadership Development Program Adult Learning HOL 6701 LM

- Major adult learning theories and concepts
- Principles of good instructional design across learning settings
- Design, facilitation and evaluation of effective adult learning experiences Curriculum Design for Adult Learners HOL 6726 LM
- Major steps in the curriculum design process
- Principles of change related to introducing a new curriculum
- Design of a curriculum from problem identification through implementation Assessment of Adult Learning HOL 6727 LM
- Principles of effective assessment of learning methods used in health professions
- Critique of published assessment research
- Design of assessment for learning interventions, including grading schemes and rubrics Work Groups & Teams in Organizations HOL 6746 LM
- Theory and models of group/team learning and performance
- Effective group/team structures and processes
- Techniques for addressing teamwork issues in the workplace Leadership in Organizations HOL 6704 LM
- Major approaches to leading and leadership development in organizations
- Leadership relationships, processes, and dynamics
- Individual leadership development and planning

Moot Court

Partner with a University Law School to establish a Moot Court training program for the forensic science staff, prosecutors, and defense.

- Develop a moot court curriculum as a capstone event finalizing major training initiatives for new staff and new technologies.
- Includes a practical case exercise that includes common scientific principles and techniques that require explanation to the court.
- Simulate the courtroom setting with the use of courtrooms and role play judge and juries.
- Record the mock trials for critique by staff and customers.

Digital Evidence[139]

National White Collar Crime Center (NW3C) provides free Online Training and Classroom Training:

- DF100 Basic Digital Forensic Analysis: Seizure (BDFA-Seizure)

[139]The NW3C and US Secret Service courses are free of charge for state and local government agencies.

- DF101 Basic Digital Forensic Analysis: Windows Acquisition (BDFA-Win Acq)
- DF201 Intermediate Digital Forensic Analysis: Automated Forensic Tools (IDFA-AFT)
- DF205 Intermediate Digital Forensic Analysis: SQLite Primer (IDFA-SQLite)
- DF310 Advanced Digital Forensic Analysis: Windows (ADFA-Win)
- DF320 Advanced Digital Forensic Analysis: macOS (ADFA-Mac)

US Secret Service National Computer Forensic Institute courses are virtual, classroom-based, and are free for law enforcement, prosecutors, and judges:

- Advanced Forensics Training (AFT)
- Memory Forensics and Malware Analysis (MFMA)
- Mac Forensics Training (MFT)
- Network Intrusion Response Program (NITRO)
- Ransomware Incident Response Training (RIRT)
- Drone Forensics Training (DFT)
- Digital Video Recorders (DVR)
- Vehicle Forensics Course (VFC)
- Ransomware Incident Response Training (RIRT)
- Mac Forensics Training (MFT)

Firearms Examination

Training for New Examiners

- National Firearms Examiner Academy (NFEA) - sponsored by the Bureau of Alcohol, Tobacco, Firearms and Explosives
- Forensic Firearms Training Seminars, Inc. - private training option
- Nichols Forensic Science Consulting, Firearm and Toolmark Training Academy - private training option

Professional Development and Training Activities

- Association of Firearm and Tool Mark Examiners (AFTE)
- Membership
- Annual Training Seminars
- Certification
- American Academy of Forensic Sciences (AAFS) annual meeting
- Precision Forensic Testing, Inc. - provides machining methods for the firearm examiner
- Nichols Forensic Science Consulting - provides web-based training in advanced topics for the firearm and toolmark examiner

Forensic Biology

Professional development and training opportunities:

- International Symposium on Human Identification (ISHI) - This is the largest international meeting devoted entirely to forensic DNA-related topics.
- American Academy of Forensic Sciences (AAFS) annual meeting
- Gordon Research Conferences
- Green Mountain DNA Conference
- ANAB Forensic Laboratory quality training
- A2LA Forensic laboratory quality training

Forensic Chemistry

Professional development and training opportunities:

- Mid-Atlantic Association of Forensic Scientists (MAAFS)
- American Academy of Forensic Sciences (AAFS) annual meeting
- Auditor training
- ANAB
- A2LA

Latent Fingerprint

New Employees: Training for new examiners should follow the Scientific Working Group on Friction Ridge Analysis, Study and Technology (SWGFAST) Guidelines for Latent Print Examiners. The recommended training program is extensive over an approximately 24-month period for new examiners. Below is a sample training curriculum for latent print examiners, segments of this curriculum could be appropriate for remedial and additional training for previously trained and experienced examiners:

- Introduction to the Science of Friction Ridge Examination/Ridgeology
- Palm Print Comparison
- Essential Ridgeology Concepts
- Latent Print Search and Comparison Techniques
- Courtroom Testimony Training
- Examination of Simultaneous Impressions
- Comparison of Plantar Friction Ridge Impressions
- Scientific Analysis using the ACE-V Methodology
- Exclusions and Sufficiency Decisions
- Advance ACE-V Applications for Fingerprint Examiners
- Complex Latent Print Examinations
- Finding Latent Prints using Chemistry and Forensic Light Sources
- Forensic Digital Imaging

Training Resources: The following are just a few of the established agencies that offer a wide range of training in the friction ridge sciences for both new and experienced examiners:

- Ron Smith & Associates
- TriTech Forensics
- Forensic Pieces
- CSI Academy of Florida
- Evolve Forensics
- Sirchie

Continuing Education/Professional Development: There are a number of forensic organizations that promote education and provide annual continuing educational opportunities:

- International Association for Identification (IAI) - IAI offers certification for Latent Print examiners and other forensic disciplines.
- Chesapeake Bay Division of the IAI (encompassing DC, Delaware, Maryland, Virginia, and West Virginia)
- American Academy of Forensic Sciences (AAFS) annual meeting

Appendix K: Training Unit Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements

Table K-1: Training Unit Nonconformance – Personnel Competence

Requirement:
ISO/IEC 17025 6.2.1 [redacted]
ISO/IEC 17025 6.2.2 [redacted]
ISO/IEC 17025 6.2.3 [redacted]

Observed State:
- The Training Unit did not target nonconformances in an effort of continual improvement.
- There were no training effectiveness metrics.
- Training records were incomplete and not controlled in one secure area.[140]

Macro Root Cause Effects:
- The Forensic Units lacked the ability to document the competence requirements for each function influencing the results of laboratory activities, including requirements for education, qualification, training, technical knowledge, skills, and experience. Training records and authorization memoranda were incomplete and controlled by staff.
- The Training Unit staff lacked specific training and education on the design, development, and management of a forensic training program to include:
  - Technical/Procedure writing skills
  - Effectiveness metrics (continual decrease in nonconformances and increase in quality
  - Curricular development, learning objectives, competency assessments, and proficiency tests
  - Strategic professional development planning
- DFS lacked a structured moot court program.

Desired State:
- The staffing model for training is adequate to provide all staff training to competency, management/leadership, and professional development, and remediation.
- Training Support Unit[141] provides instructional support for the Forensic Units.
- A training records manager controls all training records and authorizations in one central location in a digital format. The training program prioritizes casework analysis skills and targets laboratory nonconformances to continually improve laboratory quality.
- A moot court program serves as the capstone for all training programs.

[140] Interviews with Training Unit staff revealed training and authorization memoranda were often incomplete and maintained by staff within the individual units. SNA was not able to see some of the training records for staff that were on leave from the DFS.
[141] See Figure 3 for a recommended reorganization of the DFS Quality and Training Support Units.

Corrective Action Steps:

- Provide the Training Support Unit staff with specific training in instructional development, curricula development to include but not limited to onboarding, training to competency, and professional development with competency assessments and proficiency testing, and professional development strategies, in all forensic disciplines.
- DFS will develop an organized training record system, for example, in QualTrax®, to maintain digitized files of all present and past training and professional documents in one central location. This system is to be accessible by Forensic Unit Technical Leaders and unit managers, as well as by staff in the Quality Support and Training Support Units.
    - The Training Support Unit is responsible for organizing and archiving all training, competency, and authorization records secure in hard copy and digitized form.
    - The Training Support Unit is responsible for providing staff leaving DFS employment with the DFS with digitized copies of all of their training and professional development files to take with them. Currently, the records are not readily accessible, incomplete, and scattered in various locations, hard copy and electronic.

Table K-2: Training Unit Nonconformance – Code of Ethics

Requirement:
AR 3125 4.1.3.1 The management system shall:
a) have a code of ethics as part of the management's commitment to good professional practice;
b) ensure annual review of the document by all personnel and maintain a record of the review; and
c) ensure appropriate actions are taken when necessary.

Observed State:

- It was difficult to review employee training records. According to the FY2020 Annual Report, only 23 employees attended Ethics Training in 2020. Upon further investigation, additional ethics training records were uncovered.
- DEU employees' training records had no documentation of evidence of ethics training, and some employees could only confirm a review of the ethics once in the past three years.

Macro Root Cause Effects:
Training Unit training records were not well organized, which makes it difficult to ensure compliance with required training.

Desired State:

- The DFS has an internal robust training program in ethics that focuses on the challenges faced by forensic scientists.
- All staff attends annual ethics training, which includes a review of the ANAB Guiding Principles of Professional Responsibility for Forensic Service Providers and Forensic Personnel.[142]

Corrective Action Steps:

- The Training Support Unit is responsible for ensuring all training requirements of DFS staff are fulfilled on schedule as required by DFS and FSL policies and discipline-specific and ANAB accreditation requirements.

[142] If the DFS FSL decides to use a different accreditation provider, the training should include the ethics guidelines according to the accreditation agency.

- The Training Support Unit maintains a comprehensive database of all training and professional development requirements that must be fulfilled by each employee annually as required by DFS and FSL policies and discipline-specific and ANAB accreditation policies.
- The Training Support Unit updates the database as part of their training records maintenance system (See Table M-2: Quality Unit Nonconformance – Corrective Actions).

Appendix L: Data Management System Enhancements

The following is a list of Data Management System Enhancements that would facilitate the effective collection, storing, and sharing of information.

- As an immediate stopgap, update the outdated documents posted on the DFS website and develop a process for ensuring the DFS website has up-to-date documents.
- Upgrade LIMS from JusticeTrax 3.7 to 3.8
- Determine a strategy for securing the integrity of case documents, data, and records. (e.g., – write once read many)
- Create and implement a project plan to Integrate JusticeTrax 3.8 with discipline-specific software so that reports automatically pull data from the secondary systems in the laboratory (e.g., STACS).
- Develop and execute a plan to implement new features and reports in JusticeTrax (e.g., worklists, programmatic notification of case or system issues, indexer to capture and index documents and emails associated with a case) to increase laboratory efficiency and comply with open record mandates
- Evaluate staffing requirements and hire staff that understands IT and forensics to support DFS LIMS users appropriately.
- Provide training for support staff. Mandate that staff attends JusticeTrax User forums and meetings to capture lessons learned from other forensic laboratories.
- Develop and implement a DFS standard change management process to control, approve and implement new configuration changes in JusticeTrax to include:
    - Deciding which features to add
    - Approving new features
    - Assuring compliance with standards and forensic best practices
    - Identifying any ancillary effects to other areas of the data management process and resolving if necessary
    - Validating the new feature
    - Updating associated SOPS (if required)
    - Providing and documenting training and competency testing
- Define the vision for help desk operations for LIMS. If LIMS support remains within DFS, leverage a commercial off-the-shelf help desk system to help manage LIMS support requests for LIMS and instrument issues.
- Undertake an initiative to develop and implement a data management portal on the DFS website to allow appropriate stakeholders (e.g., USAO, OAG, PDS) to access relevant versions of applicable documents and records in real-time (e.g., case files, validation studies, training records, proficiency tests, Q-CARs and Q-PARs.
    - Review DFS legislation to determine current required documentation.

  - Meet with industry partners to assess mechanisms for sharing documents (e.g., New York State Police Crime Laboratory, Houston Crime Laboratory, Georgia Bureau of Investigation).
  - Meet with relevant customers (e.g., USAO, OAG) to identify any gaps in documents that should be available.
  - Ensure all documents are available electronically (i.e., scan paper copies of documents).
  - Evaluate the discovery portal in JusticeTrax and Qualtrax and identify what additional features are needed to develop a stakeholder interface.
  - Develop an automatic process for accessing documents not housed in JusticeTrax or Qualtrax (e.g., large Mideo microscopic image files).
  - Develop a mechanism to address the production of special/unusual document requests (e.g., an image of a hard drive).
  - Provide automated notifications when casework is completed.
  - Develop a logging mechanism to record when the portal is accessed.
  - Provide a mechanism for clients to submit case inquiries with automatic notifications (and re-notifications) to analysts (and other appropriate individuals).
  - Develop a stakeholder interface that addresses all privacy and security requirements and allows access to all relevant documents.
  - Conduct validation studies to ensure the portal provides all information requested.
  - Develop policies and procedures for updating and accessing the portal.
  - Train and competency test staff and stakeholders in the use of the portal.
- Develop automated processes using the LIMS to detect anomalies and discrepancies in data and automatically alert the appropriate staff.
- Create and implement a project plan to automatically generate reports that will facilitate laboratory operations to identify technical issues.
- Identify laboratory metrics to be captured in LIMS.

Appendix M: Quality Unit Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements

Table M-1: Quality Unit Nonconformance – Quality Management System

Requirement:
ISO/IEC 17025 8.1.1 [redacted]

ISO/IEC 17025 8.2.3 [redacted]

Observed State:
The Quality Unit was not:

- Capable of supporting and demonstrating compliance with ISO/IEC 17025:2017 requirements, as evidenced by the withdrawal of ANAB accreditation.
- Appropriately staffed to meet unit responsibilities.
- Directly engaged in forensic discipline unit activities.
- Directly engaged with the Director or Forensic Units.

Macro Root Cause Effects:
Quality staff expertise was concentrated primarily in clinical laboratory medicine. DFS Quality Support Specialists lacked the knowledge, skills and abilities in forensic laboratory operations required to successfully implement the ANAB ISO/IEC 17025 requirements and oversee sustained accreditation of the FSL

Desired State:

- The Quality Support Unit[143] staffing model consists of the correct number of qualified staff to ensure the DFS Forensic Units conform with ISO/IEC 17025:2017 requirements.
- Quality Support Unit staff are selected with or trained to have the appropriate knowledge, skills, abilities, and experience to match job duties and responsibilities.
- The Quality Support Unit collaborates with the Training Support Unit and Risk Management Units to eliminate nonconformance root cause factors.

Corrective Action Steps:

- Design, develop and implement a staffing model capable of sustaining ANAB ISO/IEC 17025:2017 accreditation.
  - Identify the roles and responsibilities for the new Quality Support Unit in working with the Forensic Unit Forensic Scientist Technical Leaders to collaboratively support and facilitate the QA operations in the forensic units.
  - The Forensic Scientist Technical Leader(s) of each Forensic Unit will be responsible for quality within the unit and work directly with the Quality Support Unit for assistance and other support as required.
- Review job descriptions,
  - Revise and or create new positions (e.g., Forensic Scientist Technical Leader) as appropriate to meet forensic laboratory requirements and ensure effective QA programs within each Forensic Unit.

[143] See Section 4.1.3 DFS Leadership Organization and Figure 3: SNA Proposed DFS Organizational Chart for a recommended reorganization of the DFS Quality and Training Support Units.

- Recruit and select new staff and/or train current staff so that they have the proper knowledge, skills, abilities, and forensic experience to meet job qualifications.
- Revise policies and procedures to mandate Quality Support Unit engagement with FSL (DEU, FBU, FCU, FEU, LFU) activities.
- Provide support for training, professional development, and certification of Quality Support Unit staff.
- Review all laboratory manuals, procedures, and policies and determine how they can best be consolidated to minimize and coordinate all documents.

Table M-2: Quality Unit Nonconformance – Corrective Actions

Requirement:
ISO/IEC 17025 8.7.1 [redacted]

AR 3125 8.7.1.g) The process for corrective action shall establish a reasonable timeframe for completion for each corrective action.

Observed State:
- Q-CARs were prematurely closed before corrective actions were evaluated for effectiveness.[144]
- Corrective actions were ineffective, resulting in recurrence of nonconformances such as chain of custody nonconformance and incomplete case records.[145]

Macro Root Cause Effects:
- Not all DFS staff had a complete understanding of the corrective action process and how it can be successfully used to enhance laboratory operations.
- DFS staff have not had adequate training in root cause investigation and corrective action monitoring.
- Procedures did not provide a reasonable time frame for the monitoring of the effectiveness of corrective actions.

Desired State:
- All staff are engaged, trained, and encouraged to identify, report, and eliminate nonconformances.
- Corrective actions effectively eliminate root causes and prevent recurrence of nonconformances.

[144] Q-CAR-21-18126-FSL-LFU Closeout Memorandum.
[145] There were Q-CARs for FEU chain of custody nonconformances annually since 2016.

Corrective Action Steps:

- DOM07 permits time-frame adjustments (beyond 30 days) to accommodate for more complex root cause investigations.
- Update procedures for corrective actions to clearly identify what each Q-CAR step entails and include that closeout will not occur until FSAB gives approval.
- Review and revise prior Q-CARs to verify completeness of actions and effectiveness of corrective actions.

Appendix N: Recommended Actions to Enhance Courtroom Testimony

The following are recommendations for enhancing courtroom testimony.

- Develop a presentation "to go" kit for each Forensic Unit. Each discipline should have a testimony reference package that contains pertinent scientific information. Each examiner should customize their testimony package with their *curriculum vitae* (CV), and any other information they feel will make their testimony more effective. This package should be taken to court, only used as needed to prepare for court. It should include:
    - Terminology list
    - Copies of scientific publications
    - SOPs
    - Quality policies and procedures
    - Visual aids (these can be used in court if allowed)
    - Other relevant materials
- Develop a dedicated training program for courtroom testimony. Ideally, testimony training should include at a minimum:
    - Learning objectives/purpose
    - Review of legal terminology and courtroom proceeding
    - Role of an expert witness
    - Proper courtroom appearance and demeanor
    - Effective pre-trial preparation
    - Effective use of graphics and visual aids
    - Ethics of testimony
    - Qualifications and preparation of CV
    - DC DFS testimony review process
    - Unit specific training including:
        - Current literature[146]
        - Previous testimonies and challenges typically encountered in court
        - Review of commonly asked questions
        - Review of scientific terms
        - Detailed knowledge of the underlying theory of scientific methods, equipment, and software used to perform the testing used, and ability to explain important details of the testing to a jury.
        - Development and use of graphics
        - Presentation of casework in moot court (preferably videotaped)

[146] Standard 16.1.2 of The FBI Quality Assurance Standards for Forensic DNA Testing Laboratories (Effective 7/1/2020), requires a Technical Leader-approved, documented program for the annual review of scientific literature by examiners/analysts. which all DFS forensic disciplines should adopt.

    - Review of moot court testimony
- Determine when refresher training is needed for staff members that have not testified in a specified period of time (e.g., a year) or when the DFS incorporates new technology and procedures. Provide retraining and competency testing as needed.
- Develop competency tests for the testimony and refresher training.
- Identify and train technical staff in each unit to provide specialized testimony in specific topics that are used in the analysis that requires more advanced interpretation and explanation.
- Develop a courtroom testimony monitoring program for all forensic disciplines at DFS.

Appendix O: Security Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements

Table O-1: Security Nonconformance – Control of Facilities and Access

Requirement:
ISO/IEC 17025 6.3.4 [redacted]

AR 3125 6.3.4.1 There shall be a procedure that addresses security and access to areas where testing and calibration occur.[147]

Observed State:

- The DFS/FSL did not comply with DOM01 Security Procedures which provides guidance for addressing security and access to areas where testing occurs but does not comply with this procedure.
- The FSL QAM section 6.3.4 mentioned only that "Access levels will be reviewed annually, at minimum."
- There were no records to verify DFS has completed a lab-wide security review since 2017, and there was no evidence that any of the vulnerabilities and options for consideration identified in the 2017 Department of Homeland Security report were addressed.[148]

Macro Root Cause Effects:

- Executive Leadership did not appear to be aware of this annual obligation to conduct a security audit.
- Security was not appropriately evaluated during the annual management review.

Desired State:
DFS operates in accordance with DOM01 4.2.4 policy and procedural guidance for facilities security and limiting access to examination areas. Policies clearly define authorities and responsibilities to perform annual security audits and access control to examination areas.

Corrective Action Steps:

- Prioritize and conduct the periodic review/inspection of the security procedures as required and document results showing that the requirement has been satisfied. Ideally, this activity could be tied to the annual management review.
- Perform risk analysis on the building security plan to identify any potential weaknesses including:
  - Perimeter access.
  - Interior examination and evidence storage locations.
  - E-key card reader and door lock functionality.
  - Authorized evidence storage locations.
  - Authorized staff to handle evidence.
  - Reduce reliance upon hard cc master keys.
  - Assure functional operability of:
    - Lock sets.
    - Staff badges.
    - Cameras.

[147] Topics to consider may include, but are not limited to, access to building, access by personnel, access by visitors, security during operational hours and non-operational hours, and devices that grant access.
[148] DFS management informed SNA staff that there was a Department of Homeland Security Infrastructure Survey Security & Resiliency Report performed 20 September 2017.

- Intrusion detection.
- Fire alarms.
- Smoke alarms.
- CO alarms.
- Chemical alarms.
- Visitor access metal detector.

Appendix P: Chain of Custody Nonconformance with ISO/IEC 17025:2017 Forensic Laboratory Accreditation Requirements

Table P-1: Chain of Custody Nonconformance – Handling of Test Items

Requirement:
ISO/IEC 17025 7.4.1 [redacted]

Observed State:

- Examiners were not listed in chain-of-custody records (DFS-16-00600), and there were long delays in returning evidence to storage (DFS 16-01304; more than six months).
- QAM, DOMs, Laboratory Operation Manuals (LOMs), and SOPs were not specific regarding CoC procedures.
- CoC storage locations were not specific, and personnel were not specifically designated.
- CoC records were incomplete (long periods unaccounted for authorized persons or places).
- CoC records were minimized to transfers between units with limited names of personnel.

Macro Root Cause Effects:

- Q-CAR and associated root cause analyses were ineffective and did not prevent reoccurrence.
- Authorized personnel and designated evidence storage locations were not uniquely identified in DOM10 Procedure for Handling Evidence.

Desired State:

- Departmental, Laboratory, Quality and Unit manuals provide authorizations by the Chief of Forensic Operations limiting access to evidence storage and possession:
  - Authorizes secure places to store evidence.
  - Authorizes individuals to access and possess evidence.
- Record and archive all transfers of evidence between authorized places and personnel.

Corrective Action Steps:

- Review and revise all DFS manuals to reflect proper CoC policies and procedures:
  - DFS Director authorizations for designated places and personnel.
  - Limit access to authorized secure places.
  - Limit personnel to access and possess evidence.
- Update LIMS system to
  - Record transfer of evidence between all authorized places and personnel on the relevant CoC.
  - Ensure CoC is for every piece of evidence is accurate and complete for all transfer steps at the DFS (e.g., evidence receipt, all transfer points, and return or disposal).
  - Provide inventory reports for all authorized places and personnel.
- Provide CoC records for all case files and discovery.

Appendix Q: DEU Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements

Table Q-1: DEU Nonconformance – Validity of Results

Requirement:
ISO/IEC 17025 5.5c [redacted]

ISO/IEC 17025 7.5.1 [redacted]

AR 3125 7.5.1.3 Technical records to support a report (including results, opinions, and interpretations) shall be such that, another reviewer possessing the relevant knowledge, skills, and abilities could evaluate what was done and interpret the data.[150]

Observed State:

- DEU SOPs lacked detailed step-by-step methods or instructions to ensure the consistent application of all laboratory activities. DEUSOP's 01 through 16 are based only on general considerations instead of providing specific and validated methods that can be applied for each forensic activity, with minimal discretionary use of approved and validated minor deviations. SOPs were based on outdated best practices instead of newer and more relevant SWGDE and NIST publications. For example, the Video Forensic Analysis SOP only lists a single 2008 SWGDE position paper as a reference instead of a best practice, but there are at least 12 SWGDE best practices and technical concepts issued between 2016 and 2021.
- Technical records are incomplete, do not support the examination reports, and cannot be evaluated to determine what was done and to interpret the data. For example, a review of cases DFS-20-00517, DFS-20-00638, DFS-20-00660, and DFS-20-02338 revealed that technical notes were incomplete, leading to exam report findings that could not be supported or replicated.
- 2019 Internal Audit findings - DEUSOP02 specified that the examiner should "photograph and record information off-device" and after to "follow forensic tool instructions for acquisitions selected." It was noticed that the examiner also photographed the screens of the phone after the acquisition. This was not specified to do so in the SOP.

Macro Root Cause Effects:
The lack of detailed procedures led to the inconsistent or incomplete application of laboratory activities, such as equipment performance checks, method validations, examinations, analysis, and technical reviews.

Desired State:
DEU SOPs should be sufficiently detailed to provide the scientist step-by-step procedures and required tasks to perform, leading to detailed and complete technical notes and reported examination findings that can be replicated.

Corrective Action Steps:
DEU SOPs should be very detailed to provide the scientist with step-by-step procedures and tasks that ensure the consistent application of acquisition, extraction, examination, and analysis of digital evidence.

[149] Options for recording observations include, but are not limited to written notes, photography, drawing, photocopying, or scanning.
[150] Documenting procedures to the extent necessary to ensure the consistent application of testing and calibration and the validity of the results includes analysis and data interpretation to arrive at a result, opinion or interpretation.

Table Q-2: DEU Nonconformance – Competency

Requirement:
ISO/IEC 17025 6.2.1 [redacted]
ISO/IEC 17025 6.2.2 [redacted][151]
ISO/IEC 17025 6.2.3 [redacted]

AR 3125 6.2.3.1 All personnel who perform testing or calibration shall be competency tested. Testing or calibration includes the review and authorization of results and expressing an opinion or an interpretation. The competency test shall include practical examination(s) that cover the spectrum of anticipated tasks related to the test or calibration. The competency test intended results shall be achieved prior to performing the tasks on a test or calibration item.[152]
AR 3125 6.2.3.2 Personnel who perform technical review of results or testimony, shall meet the competency requirements as specified in 6.2.3.1 for the testing or calibration tasks being reviewed.

Observed State:

- The current DEU Lead Forensic Scientist was hired while not meeting the qualifications listed in the Human Resources job description.[153] It appeared that DFS did not follow its own policy of hiring qualified staff. Per DFS Interview and Selection Policy (DCN: 4410, Rev. 2) Section 7. Procedures: All applicants for positions are screened by DCHR and DFS. *Qualified applicants from the HQ (highly qualified) pool are forwarded to the hiring manager upon completion of the screenings.* Per the DFS FSL Quality Assurance Manual (DCN 10164, Rev. 2) 6.2.1: All personnel of the laboratory, either internal or external, that could influence the laboratory activities shall act impartially, be competent, and work in accordance with the laboratory's management system. *The FSL uses qualified technical personnel who are employed by or under contract to the DFS.* Unit management will ensure that competent contractors and key support personnel are supervised and that they work in accordance with *the FSL's quality system*.
- DEU lacked records to show adequate competency testing was completed by all DEU staff prior to engaging in laboratory activities, including method validations, casework, technical reviews, testimony, and equipment verifications.
- DEU Lacked competency testing records to support the "authorization memos" issued by the DEU Forensic Scientist Manager.
- The very few competency documents found in DEU staff training files did not have information about the method of competency testing, type of examination or analysis, evidence type, test date, test time, name of tester, grading criteria, test results, and scope of testing. For example, three staff did not have complete records to show competency in any laboratory activity. A new trainee currently undergoing training/competency and three former employees also lacked competency records.
- Training Manuals (2015, 2018, and 2021) only showed module outlines and checklists of completed training used for the purposes of monitoring trainee progress, but not the actual competency testing criteria and grading results.

[151] See GD 3152 for guidance on the phrase "influence the result of laboratory activities."
[152] Competency testing can be conducted for an individual task, or a group of tasks covered by a module of a training program.
[153] See Lead Forensic Scientist (Digital Evidence) CS-401-14, DC Department of Human Resources (signed by the Forensic Scientist Supervisor, Digital Evidence Unit, September 19, 2013), which requires seven years relevant experience in Digital Evidence at the Forensic Science III Class or equivalent. The incumbent's CV indicates prior experience of three months at the Forensic Scientist III level, one year and one and two thirds' years at the Forensic Scientist II and I levels, respectively, and did not list prior experience or training that would justify bypassing the seven-year experiential requirement of the position description.

- DEU Forensic Scientist Manager failed to maintain accurate and complete competency, validation, and authorization records.

Macro Root Cause Effects:
Forensic Science Manager and Lead Forensic Scientist did not implement an effective training program.

Desired State:
Competency and authorization memoranda are accurate, current and associated with all SOPs and instruments used for casework analyses.

Corrective Action Steps:
QA direct oversight, authorization, and access control of all DEU competency testing records. Modify relevant QAM's to reflect said changes.

Table Q-3: DEU Nonconformance – Training

Requirement:
AR 3125 6.2.2.2 The training program for each function influencing the results of laboratory activities, to the extent necessary based on job function, shall include:[154,155]
a) the knowledge, skills, and abilities needed to perform work;
b) general knowledge of forensic science;
c) the application of ethical practices in forensic science;
d) criminal law, civil law, and testimony;
e) provisions for retraining;
f) provisions for maintenance of skills and expertise; and
g) criteria for acceptable performance.

Observed State:
- DEU lacked training records to verify that training was completed by DEU staff before conducting laboratory activities.SNA identified a note in the training files of two DEU staff that said, "The following documents are unavailable Individual Training Plan, Training binder/checklists, Presentations, and Training Progress Reports."
- Training Manuals (2015, 2018, and 2021) only showed module outlines and checklists of completed training used for monitoring trainee progress, but not the actual training curriculum and competency testing criteria. Said training manuals mandated training records for each scientist.

Macro Root Cause Effects:
Forensic Science Manager and Lead Forensic Scientist did not implement an effective training program based on validated methods and best practices.

Desired State:
DEU training program based on current best practices and standards, supported by proper training and competency testing records and direct oversight by the DFS Training Unit.

Corrective Action Steps:
DFS Training Unit oversight and explicit authorization to approve, reject and maintain unit-specific training manuals, personnel training records, and remediation for units and personnel that do not meet the minimum training standards.

[154] Past work experience and training may be substituted for portions of the training program to the extent that it has been demonstrated to be relevant and sufficient.
[155] ISO/IEC 17025:2017, Section 7.3 may be applicable to training programs.

Table Q-4: DEU Nonconformance – Equipment

Requirement:
ISO/IEC 17025 6.4.3 [redacted]

AR 3125 6.4.3.2 Reference collections shall have each entry in the collection documented, uniquely identified and handled properly to protect the characteristic(s) of interest.
ISO/IEC 17025 6.4.10 [redacted][156]
ISO/IEC 17025 6.4.13 [redacted]

Observed State:
- Known data sets (software) used as a reference collection for equipment (hardware/software) validation and performance checks were stored in DEUnet, but no records existed to show their handling, storage, usage, and planned maintenance.
- 2019 Audit findings identified that equipment performance checks had no clear or scheduled plan to perform said checks and records are paper copy only, thereby preventing the identification of trends involving the use of equipment.
- Validation/verification records have discrepancies such as incomplete fields, unsigned and undated documents, and most controlled document footer info (Issue date/approval) are missing. Additionally, validation/performance check worksheets lack instructions for their proper completion in order to ensure the consistent application of such activities.
- Outdated hardware reference collections used for equipment validations/performance checks do not reflect the latest devices being submitted as evidence for examination, and software collections were stored in DEUnet without tracking, handling, usage, or planned maintenance.

Macro Root Cause Effects:
DEU Forensic Science Manager and Lead Forensic Scientist did not maintain complete equipment validation/performance check records and up-to-date digital evidence reference collections.

Desired State:
Define and develop DEU reference collections that are up-to-date and tracked; accurately complete equipment validation/performance check records.

Corrective Action Steps:
- Develop specific and detailed procedures for the handling, storage, usage, and maintenance of reference collections (hardware/software)
- Ensure all equipment validation/performance checks records are electronic and complete to identify trends involving their usage and planned maintenance.

[156] When evaluating the need for intermediate checks, topics to consider include, but are not limited to the calibration interval, the use of the equipment, the stability of the equipment, the method specifications, and risk associated with a failed check.

Table Q-5: DEU Nonconformance – Methods

Requirement:
ISO/IEC 17025 7.2.1.2 [redacted]

AR 3125 7.2.2.1.1 The laboratory shall have a procedure for method validation that:
a) includes the associated data analysis and interpretation;
b) establishes the data required to report a result, opinion, or interpretation; and
c) identifies limitations of the method, reported results, opinions, and interpretations.

Observed State:
- There are no DEU method validation records to support the Flexible Scope of Accreditation (acquisition, extraction, examination, analysis). For example, DEUSOP01 through 16 are based only on general considerations instead of providing specific and validated methods that can be applied for each forensic activity. The DEU SOPs include the usage of specific worksheets but lack instructions for their proper completion to ensure the consistent application of such activities. Omission of key terminology from DEU key documents was a contributing factor to the SOP deficiencies.
- Upon the SNA request to Quality Unit Management for DEU validated methods, in compliance with DOM04, DEU's response was, "DEU doesn't have 'methods' to validate. DEU has tools and software that are subject to validations and performance checks." This is a major deviation of DOM04 requirements.

Macro Root Cause Effects:
- DEU Management did not appear to understand the requirement for method development.
- DEU Forensic Science Manager had multiple competing roles within the DFS.

Desired State:
- Validate all existing and novel methods before the inclusion into the appropriate DEUSOP.
- Include key terms associated with digital and multimedia evidence that must be reintroduced into the DEU QAM, DEU Training Manual, and DEUSOP documents.

Corrective Action Steps:
All methods for performing acquisitions, extractions, examinations, and analysis of digital evidence must be validated and documented prior to inclusion into DEU SOPs and usage in casework, supported by key terminology and definitions incorporated into DEU key documents.

[157] See ISO/IEC 17025 8.3 Control of Management System Documents (Option A).

Table Q-6: DEU Nonconformance – Handling of Evidence

Requirement:
ISO/IEC 17025 7.4.1 [redacted]

AR 3125 7.4.1.1 For all test items received except known origin individual characteristic database samples, the procedure shall:
a) address requirements for storage, packaging, and sealing of items to:
1. protect the integrity of all items
2. require items to be re-sealed as soon as practicable

Observed State:
Individual physical evidence items, some without any submitting agency or LIMS labeling, were provided to DEU staff for examination without an accurate chain of custody tracking history**.** For example, a DEU scientist that retrieves evidence from lockers available to submitting agencies may not be listed in the LIMS chain of custody or in a submitting agency custody list.

Macro Root Cause Effects:
DEU evidence lacked a complete chain of custody records for accurate transfers of evidence between authorized persons and places. See Section 4.1.13 Chain of Custody.

Desired State:
DEU evidence records include an accurate chain of custody records for all items transferred between authorized persons and places in accordance with SOPs.

Corrective Action Steps:
Intermediate leadership provides guidance for all staff to ensure chain of custody records are complete and accurate.

Table Q-7: DEU Nonconformance – Identification of Evidence

Requirement
ISO/IEC 17025 7.4.2 [redacted]

AR 3125 7.4.2.1 The system used to identify items shall cover all items received.

Observed State:
Derivative, duplicate or working copies of digital evidence were not labeled and entered into LIMS or tracked. For example, derivative evidence (data) obtained during acquisitions, extractions, examinations and analyzes are stored in DEUnet but are not entered into LIMS and are stored in DEUnet indefinitely without chain of custody or electronic tracking.

Macro Root Cause Effects:
- QA Manager: Internal audits have not identified that derivative and duplicate copies of digital evidence is not entered into LIMS for tracking - instead, it is stored in DEUnet without tracking procedures or records.
- DEU Forensic Scientist Manager permitted improper evidence handling deviations from requirements instead of ensuring all submitted evidence is entered into LIMS to ensure a proper chain of custody.

Desired State:

Apply existing DFS Evidence Retention Policy to digital evidence stored in DEUnet.

Corrective Action Steps:

- Return all derivative, working copy, or duplicate evidence to the submitting agency with the physical evidence items so that evidence disposition can be addressed by the submitting agency.
- If warranted, the submitting agency may re-submit physical devices or the derivative, working, or duplicate copies of digital evidence to DEU for additional examination and analysis.

Table Q-8: DEU Nonconformance – Review of Technical Records

Requirement:

AR 3125 7.5.1.4 Records shall be created or maintained in a permanent manner.[158]

ISO/IEC 17025 7.5.2 [redacted]

AR 3125 7.7.1.l) There shall be a procedure for the technical review of technical records, including reports, and testimony.[160] [161], [162] The procedure shall:

1. require the individual performing the technical review to have been competency tested to perform the testing or calibration work that is being reviewed.
2. preclude an individual from technically reviewing their own work;
3. define the method to be used to ensure a representative sample of technical records and reports in each discipline are subject to technical review;
4. define the method to be used to ensure testimony in each discipline is reviewed;
5. define the method to be used to conduct and record the review;
6. ensure that the results, opinions, and interpretations are accurate, properly qualified, and supported by the technical record;
7. ensure conformance with methods and applicable management system documents; and
8. describe a course of action to be taken if a discrepancy is found.

Observed State:

- There were no detailed procedures for performing technical reviews for all testing scopes. For example, there was no DEUSOP that addresses technical reviews for all scientists to follow, and the technical review worksheet lacks instructions for its proper completion in order to ensure the consistent application of technical reviews.
- All DEU technical records are not "permanent" since their content can be modified after their completion - NOT contemporaneous to the completed activity, and such records are stored in DEUnet without tracking or monitoring of their access or modifications. DEU technical records composed during acquisitions, extractions, and examinations were not created or maintained in a permanent manner since many were modified days after their completion for unknown reasons. Corresponding technical review worksheets are also not permanent or maintained as such.

Macro Root Cause Effects:

- DEU lacked detailed procedures for performing technical reviews.

[158] For example, technical records originally captured in pencil (e.g., a rough sketch) can be maintained in a permanent manner by photocopying, scanning, or taking a photo.
[159] Contemporaneous revisions are not considered amendments.
[160] An individual conducting the technical review need not be an employee of the forensic service provider, currently proficiency tested or currently performing the work.
[161] An individual who performs a verification can also perform a technical review.
[162] The frequency may vary for different disciplines.

- DEU did not create or maintain technical records in a permanent manner.

Desired State:

- Develop detailed technical review procedures and ensure all DEU staff have been trained and competency tested prior to commencing technical reviews.
- Ensure all technical records are created and maintained in a permanent manner.

Corrective Action Steps:

- Develop detailed procedures and methods used for performing technical reviews.
- Ensure all DEU staff have been trained and competency tested in the scope of testing to be technically reviewed.

Table Q-9: DEU Nonconformance – Monitoring Performance

Requirement:
ISO/IEC 17025 7.7.2 [redacted]

AR 3125 7.7.2.1 The process for monitoring performance by comparison with results of other forensic service providers shall, at a minimum:[164, 165]
a) ensure successful completion of at least one proficiency test for each discipline prior to accreditation being granted in that discipline; and
b) ensure each location on the scope of accreditation successfully completes, per calendar year, at least one proficiency test for each discipline in which accredited services are provided, with the authorized release of the test results to ANAB from the test provider.
AR 3125 7.7.4 The performance of personnel shall be monitored. This monitoring shall ensure that all personnel who perform testing or calibration shall successfully complete at least one intra-laboratory comparison, interlaboratory comparison, or proficiency test per calendar year in each discipline on the scope of accreditation in which the individual conducts work. In the event that the preceding options are not available or appropriate, observation-based performance monitoring is acceptable.[166, 167, 168, 169]

[163] [redacted]
[164] Accreditation occurs in the discipline of Toxicology in both Calibration and Testing. The above requirements apply to the Testing scope of accreditation and Calibration scope of accreditation separately.
[165] For proficiency tests taken at the end of one calendar year, evaluation of successful completion can occur in the subsequent calendar year.
[166] The monitoring should be varied over time to cover all aspects of assigned job functions but does not have to include all aspects of the work performed each time.
[167] Solely performing verifications (7.7.1.g).1) or solely reviewing and authorizing results (7.8.1.1) are considered to be testing or calibration and are subject to these requirements.
[168] Accreditation occurs in the discipline of Toxicology in both Calibration and Testing. The above requirements apply to the Testing scope of accreditation and Calibration scope of accreditation separately.
[169] For performance monitoring conducted at the end of one calendar year, evaluation of successful completion can occur in the subsequent calendar year.

Observed State:
- Some DEU staff did not complete Digital Evidence Acquisitions or Analysis proficiency testing (internal or external) prior to the 2019 ANAB Flexible Scope Accreditation.
- Proficiency test records lacked important information to determine individual evaluation, grading criteria, and pass or fail determination, as well as the proficiency test content and evidence type.
- 2019 internal audit identified that "The procedure outlined in Section 5 of DOM16 does not preclude someone who is not competency tested from serving as the official/only reviewer of courtroom testimony.

Macro Root Cause Effects:
- The proficiency testing provider used by DEU staff was not ISO/IEC 17025 certified.
- Testimony monitoring records were incomplete for some staff.
- Proficiency test records lacked important information to determine individual proficiency test content, grading criteria, and pass/fail determination

Desired State:
Compliance with all proficiency testing requirements and appropriate maintenance of accurate and complete proficiency testing records for all DEU staff.

Corrective Action Steps:
- Ensure all DEUSOP's have been modified to include approved and validated methods for performing testing and DEU staff has been trained and competency tested prior to delivering blind proficiency testing to DEU staff.
- Ensure each scientist successfully completes a proficiency test for sub-discipline listed in the Flexible Scope of Accreditation (acquisition, extraction, examination, and analysis), as well as includes a representative sampling of digital evidence devices and data.
- Ensure QA Management has direct oversight of the proficiency test program for DEU staff, including its blind delivery, grading, reporting, and storage of all proficiency testing content, the scope of testing, and records to ensure the integrity of the proficiency testing program.
- Verify that proficiency testing provider/vendor is ISO/IEC 17025 certified per requirements.
- Ensure compliance with court testimony requirements, including training and competency testing to minimize the risk of the deficiencies identified during the DFS internal audit in 2019.

Table Q-10: DEU Nonconformance – Reporting Results

Requirement:
ISO/IEC 17025 7.8.1.2 [redacted]

AR 3125 7.8.1.2.2 There shall be a procedure for reporting of results that:
a) identifies what will be reported for all items received, including items on which no work was performed, items collected or created and preserved for future testing, and for partial work performed;
b) requires qualifying the significance of associations in the report whether by a statistic or a qualitative statement;[172]
c) requires communicating the reason(s) in the report when the reported results are inconclusive; and
d) requires reporting of the initial database entry (e.g., DNA profiles, friction ridge, ballistics, biometrics).

[170] [redacted]
[171] [redacted]
[172] Associations for multiple results may be qualified by a single statistic or qualitative statement if the statistics are identical or, where applicable, meet or exceed a defined minimum threshold.

Observed State:
Reports did not accurately provide all information necessary for the interpretation of the results and the information required by the method used. This is directly correlated to the fact that technical notes are also incomplete and do not clearly identify methods, tasks, or processing of digital evidence.

Macro Root Cause Effects:
DEU staff used inadequate technical procedures with unvalidated methods that resulted in incomplete examination results in reports.

Desired State:
DEU reports provide results that are accurate, clear, unambiguous, and objective so that the customer can make an informed decision based on the forensic results that may impact the investigation and prosecution.

Corrective Action Steps:
Ensure the technical notes are complete and support the results being communicated to the customer in the exam report.

Appendix R: FEU Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements

Table R-1: FEU Nonconformance – Training and Competency

Requirement:
ISO/IEC 17025 6.2.3 [redacted].
AR 3125 6.2.2.2 The training program for each function influencing the results of laboratory activities, to the extent necessary based on job function, shall include:[173], [174]
a) the knowledge, skills, and abilities needed to perform work;

Observed State:

- The current training for FEU does not include certain practical exercises important to accurate firearms processing.[175] Furthermore, the training is consistently directing the trainees to pursue the exercises as case samples, directed at making common source determinations. This creates a predisposition in the mind of a trainee that one should be pursuing identifications. This is a mindset that creates a subconscious bias and can result in an examiner who will ascribe too much significance to too little correspondence.[176]
- Inadequately trained FEU examiners were authorized to perform casework examinations without being appropriately assessed for competence to perform the tasks correctly.

Macro Root Cause Effects

- The FEU did not have a Forensic Scientist Technical Leader to oversee the technical operations of the unit, including training and quality assurance.[177]
- Quality Unit and Training Unit were not directly engaged in FEU QA and training activities.
- There was no Forensic Scientist Technical Leader, and the FEU Manager and Lead Forensic Scientist failed to ensure staff competency was properly assessed.
- FEU Forensic Scientist Manager and Lead Forensic Scientist did not work together to assess training effectiveness.
- FEU Forensic Scientist Manager and Lead Forensic Scientist failed to provide oversight of technical review, administrative review, and the verification process.

[173] Past work experience and training may be substituted for portions of the training program to the extent that it has been demonstrated to be relevant and sufficient.
[174] ISO/IEC 17025:2017, Section 7.3 may be applicable to training programs.
[175] An examiner's identification criterion is based on two factors: 1) correspondence that must exceed the best correspondence observed in known non-matching conditions and 2) be consistent with correspondence observed in known matching conditions. For an examiner's criterion to be developed and refined, it is essential that the training for examiners include practical exercises in which trainees are directed to compare toolmarks known to have been generated by different tools and toolmarks known to have been produced by the same tool.
[176] For many cases, this will not necessarily result in a misidentification because in those instances, the data set (pattern correspondence) being observed is generally quite significant. In essence, examiners can get the correct answer but not necessarily for the correct reasons. This will be an issue when the data sets are weak or there are external pressures to reach common source determinations. This is because examiners are more likely to ascribe too much significance to too little correspondence and the result can be misidentifications.
[177] The FEU had a job description entitled, Forensic Scientist Technical Leader (Firearms) signed by Karen Wiggins on 1/30/2017; however, there is no evidence this position was ever filled. SNA review of CVs from current and former FEU staff indicate key FEU staff holding positions entitled, Lead Forensic Scientist. SNA was not provided with a Lead Forensic Scientist (Firearms) job description.

- Training curricula did not include practical exercises for toolmarks known to have been generated by different tools.

Desired State:

- DFS has a verified test method accepted by the Firearm Tool Marks community and a training program that includes practical exercises designed so that trainees can develop a thorough and rigorous identification criterion, including practical exercises which direct the trainee to make comparisons of tool marks:
- Produced by different tools having similar class characteristics so that examiners will have a sense of the level of correspondence that can be observed in such situations.
- Produced by the same tool so that the examiners will have a sense of the range of correspondence that can be expected in known matching conditions.
- The FEU Forensic Scientist Technical Leader position is filled by an individual who has the educational and experiential qualifications required to oversee all technical operations within the FEU.

Corrective Action Steps:

- Fill the vacant FEU Forensic Scientist Technical Leader position with an appropriately qualified individual with significant, verified training and experience in firearm and toolmark identification who ensures the FEU examiners understand the ATFE Theory of Identification as it Relates to Tool Marks[178] including the range of permissible conclusions.[179]
- Modify training to include comparisons of bullets and cartridge cases in matching and non-matching conditions.
  - For bullets, this includes a minimum of 50 comparisons of bullets known to have been fired from the same firearm.
    - This can be accomplished over multiple practical exercises.
    - This includes bullets fired from firearms that are known to mark well as those that don't mark as well.
    - This includes bullets fired from multiple calibers having conventional and polygonal rifling.
    - Trainees document the range of correspondence observed in each comparison.
  - For bullets, this also includes a minimum of 100 comparisons of bullets that are known to have been fired from the same firearm but are compared in non-matching positions or bullets fired from different firearms having similar class characteristics.
    - This can be accomplished over multiple practical exercises.
    - This includes bullets fired from firearms that are known to mark well as those that don't mark as well.
    - This includes bullets fired from multiple calibers having conventional and polygonal rifling.
    - Trainees document the range of correspondence observed in each comparison, including clarifying the best known non-matching correspondence observed from each comparison.
  - For cartridge cases, this includes the comparison of multiple marks created by the firearm when a cartridge case is cycled and fired in a firearm.
    - These marks include, at a minimum, the firing pin impression, breech face marks, extractor, ejector, chamber marks, and, if applicable, the aperture shear and firing pin drag.
    - Firearm produced marks on cartridge cases of the same and different manufacture fired in the same firearm are compared to evaluate the range of correspondence that can occur with different ammunition.

[178] https://afte.org/about-us/what-is-afte/afte-theory-of-identification, accessed 11/05/2021.
[179] See Section 4.1.9.2 Quality Staffing and Support, discussion on modifying the Forensic Scientist Technical Leader position to follow FBU Forensic Scientist Technical Leader job duties.

- Firearm produced marks on cartridge cases fired in different firearms having similar class characteristics are compared to evaluate the incidental correspondence that can be observed when the marks are produced by different firearms.
- This can be accomplished over multiple practical exercises.
- This includes cartridge cases fired in firearms that are known to mark well as those that don't mark as well.
- This includes cartridge cases fired in multiple calibers.
- Trainees document the range of correspondence observed in each comparison, including clarifying the range of correspondence observed in matching conditions and the best known non-matching correspondence observed in non-matching conditions. Comparisons include at a minimum:
  - 50 comparisons each of impressed (firing pin impressions and breechface marks) and striated toolmarks (extractors, chamber marks and aperture shear) in matching conditions.
  - 100 comparisons each of impressed (firing pin impressions and breechface marks) and striated toolmarks (extractors, chamber marks, and aperture shear) in non-matching conditions.

Table R-2: FEU Nonconformance – Handling of Test Items

Requirement:
AR 3125 7.4.1.1 For all test items received except known origin individual characteristic database samples, the procedures shall:
a) address requirements for storage, packaging, and sealing of items to:
1. protect the integrity of all items; and
2. require items to be re-sealed as soon as practicable;
c) require chain-of-custody for:[180]
1. all items received; and
2. items that are collected or created and preserved for future testing (e.g., ESDA lifts, test-fired ammunition, latent print lifts, trace evidence, DNA extracts);
d) require chain-of-custody to securely and accurately identify:
1. the individual(s) or location(s) receiving or transferring the item(s),[181]and
2. the item(s) being transferred; and
3. the chronological order of all transfers, minimally including the date;

Observed State:
- Of the 10 cases reviewed, one had unrelated case numbers listed, and there were examiners' names present on items when the CoC does not list them.
- In FEU02, clause 7.1.2 stated, "Before any examinations are conducted, ensure that evidence items are properly sealed and labeled. Document the packaging, seal as received, and record any discrepancies in the technical work notes." This SOP failed to indicate the actions to be taken if any of the seals were inappropriate, not appropriately labeled, or if discrepancies existed.
- In reviewing DFS 15-00673, there was one item (Item 16) that seems to have been separated and displaced from the rest for nearly 1-1/2 years. It was entered into NIBIN without being present on the CoC in this case. It is uncertain how this occurred at this point. The remainder of the evidence appeared to have been handled according to established protocols and procedures.
- All procedures for CoC and evidence handling were split between three documents:

[180] An item being tracked could contain multiple components and be tracked as one item.
[181] Documentation of internal transfers does not need to include use of personal storage locations.

- **FEU02** – The Examination of Ammunition and Ammunition Components;
- **FEU12** – Evidence Handling and Case Distribution;
- **DOM10** – Procedures for Handling Evidence and Clinical Specimens.

Macro Root Cause Effects:

- There was no Forensic Scientist Technical Leader, and the FEU Forensic Scientist Manager and Lead Forensic Scientist failed to:
  - Provide oversight to protect evidence from loss, cross-contamination, and degradation;
  - Authorize specific individuals to handle evidence or places to store evidence
  - Inventory evidence to confirm CoC, which includes the transfer records of evidence between authorized persons and designated places;
  - Identify these nonconformances during casework, technical review, administrative review, and verification.
- FEU Staff failed to document complete, timely, and accurate case notes contemporaneously with when tasks were performed.
- Laboratory procedures did not establish and maintain a record of authorized staff names and designated storage locations to be included on the CoC.
- CoC integrity audits of evidence inventory authorized locations (authorized persons and locations) were not mandated or performed.

Desired State:

- FEU Forensic Scientist Technical Leader and FEU Forensic Scientist Manager effectively:
  - Provide oversight to protect evidence from loss, cross-contamination, and degradation;
  - Authorize specific individuals to handle evidence or places to store evidence;
  - Inventory evidence to confirm CoC, which includes the transfer records of evidence between authorized persons and designated places;
  - Work with the Quality Unit to identify nonconformances during casework, technical review, administrative review, and verification;
  - Revise laboratory procedures to establish and maintain a record of authorized staff names and designated storage locations be included on the CoC;
  - Perform CoC integrity audits of evidence inventory authorized locations (authorized persons and locations) are not mandated or performed.

Corrective Action Steps:

- Recruit an FEU Forensic Scientist Technical Leader to fill the vacant position with a comprehensive job description that conforms to the responsibilities and authority listed in the job description for the FBU Primary Forensic Scientist Technical Leader.
- Revise all policies and procedures with respect to CoC, evidence seals, etc., and consolidate them into a single document.

Table R-3: FEU Nonconformance – Abbreviations

Requirement:
AR 3125 7.5.1.2 Where abbreviations or symbols specific to the forensic service provider are used, the meaning of the abbreviations or symbols shall be defined.

Observed State:
All abbreviations were not defined in FEU SOPs.

Macro Root Cause Effects:
There was no Forensic Scientist Technical Leader, and the Unit Manager and Lead Forensic Scientist failed to identify, define and include case note abbreviations in the appropriate FEU procedure.

Desired State:
FEU maintains a defined list of abbreviations and symbols used in examination and review documents.

Corrective Action Steps:
Identify all abbreviations and symbols used in examination documents and include them within the appropriate FEU SOP.

Table R-4: FEU Nonconformance – Technical Records

Requirement:
ISO/IEC 17025 6.2.3 [redacted]

AR 3125 7.5.1.3 Technical records to support a report (including results, opinions, and interpretations) shall be such that another reviewer possessing the relevant knowledge, skills, and abilities could evaluate what was done and interpret the data.

Observed State:
- FEU02, Section 7.7.2 had wording that is inaccurate and confusing; additionally, the grammar in the sentences can be improved.
- FEU Management did not apply the "Inconclusive" opinion properly. Rather FEU used it as an administrative decision to bridge the gap between differing opinions of "Identification" and "Elimination."
- For NIBIN related comparisons, there were summaries of results but no details as to what marks were compared and the basis for the conclusions that were reached.
- There were no photographs of microscopic comparisons included in the case record [S001_DFS 15-00253 Report 20160120.pdf]. The DFS LOM02 – Procedures for Case Documentation and Report Writing (Issue date 9/17/19), Section 5.1.4 is not comprehensive and does not specifically require the photographs.

Macro Root Cause Effects:
There was no Forensic Scientist Technical Leader, and the FEU Forensic Scientist Manager and Lead Forensic Scientist did not ensure the appropriate FEU procedure for technical records review was in accordance with ISO/IEC 17025:2017, clearly written, understood by staff, and appropriately followed.

Desired State:

- The range of permissible conclusions in FEU02 7.2.2 conforms to the discipline standard within the United States.[182]
- Representative photographs of all comparative examinations are included as a minimum in casework.
- Along with narratives, examiners include technical data on how they arrive at their conclusions (e.g., what was compared and to what level the marks that were compared corresponded).

Corrective Action Steps:

- Rewrite FEU02, Section 7.7.2 to conform to the published AFTE Range of Conclusions.
- Require representative photographs and technical data on how examiners arrive at their conclusions in the notes of the examiner.

[182] AFTE Criteria for ID Committee Report on Theory of ID and Range of Conclusions, AFTE Journal (Volume 22, Number 3, July 1990).

Appendix S: FBU Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements

Table S-1: FBU Nonconformance – Personnel

Requirement:
ISO/IEC 17025 6.2.6 [redacted]

AR 3125 6.2.6 Note: Authorization of personnel includes all aspects of testing or calibration including, as applicable, the use of equipment.

Observed State:

- Some work authorization memos did not specify the methods/tasks authorized to review.
  - FBU17-003 did not specify what methods the analyst is authorized to technically review. The memo states, "… Forensic Biology Unit case files, core binders, and CODIS outsourcing files".
- Some work authorization memos did not specify the equipment the analyst is authorized to use.
  - FBU20-005 did not list the Alternate Light Source (ALS) or microscope as equipment authorized to use for serology evidence examinations and sperm searches.
  - FBU16-036 authorized the analyst to perform DNA quantitation and amplification but did not include the 7500 and 9700 instruments as equipment authorized to use for these tasks.
  - FBU16-039 did not include the ALS, microscope, 9700, or 7500 as equipment authorized to use.
  - The ALS and microscope were not included in any of the work authorizations for serology tasks.
  - Some deficiencies were addressed by a work authorization memo template issued by the Training Unit and a spreadsheet devised by the FBU primary Forensic Scientist Technical Leader.[183] However, work and equipment authorizations documented on the new template and FBU spreadsheet did not include the equipment required for performing serology examinations.
- The FSL Quality Assurance Manual was incomplete and did not address the use of equipment on work authorization memos.

Macro Root Cause Effects:

- Detail of authorization memos varied by author instead of ensuring consistency and completeness with an SOP or authorization template.
- Fixation on DNA analysis SOPs and the FBI QAS by FBU by the Forensic Scientist Technical Leaders, Training Unit Specialists, and Quality Unit Specialists.
  - The FBI QAS does not apply to the serology discipline.
- FBUQA01 - Forensic Biology Unit Quality Assurance Manual-1521-11 did not address work authorizations.
  - Under Section 1, Goals and Objectives, the FBU QAM stated that it operates in accordance with the quality policies and practices established in the laboratory's Quality Assurance Manual (QAM), the Departmental Operations Manuals (DOMs), the Laboratory Operations Manuals (LOMs) and the stated requirements in the FBI Quality Assurance Standards for Forensic DNA Testing Laboratories (QAS). However, authorization to use equipment is not covered in any of these manuals. Importantly, the FSL Quality Assurance Manual ISO-IEC 2017-10164-2 does not include the requirement for equipment use authorization as in the ANAB ISO/IEC 17025: 2017 requirements for accreditation.

[183] See FBU Competency Status.xlsx.

- Internal and external quality audits/assessments of the FBU failed to note the nonconformances and omissions, respectively, associated with the work authorizations and the FSL quality manual.

Desired State:

- All staff work authorizations are consistent and complete and include each SOP and equipment item required to perform the task.
- The laboratory work authorization memo template is designed in a way to ensure all accreditation requirements for work authorizations are documented on the form.
- The FSL QAM is current and addresses all ANAB AR 3125 and ISO/IEC 17025:2017 accreditation requirements.
  - All quality manuals individually or together, address all current accreditation requirements of ANAB ISO/IEC 17025:2017.
  - When depending on an overarching manual to reference accreditation requirements, e.g., the FSL QAM, the FBU primary Forensic Scientist Technical Leader makes certain the referenced manual fully conforms with current accreditation requirements of the laboratory.

Corrective Action Steps:

Update all work authorizations for DNA and Serology to include:

- All methods and equipment, including authorized to use and/or technically review.
- Revise authorization memo template to include methods identified by SOP document numbers, and if applicable, version numbers. Authorization memo template should be a fillable .pdf and could be further customized to include drag-down menus listing equipment and SOPs relevant to the specific forensic discipline issuing the authorizations.
- Ensure quality system documents conform with current ANAB AR 3125 and ISO/IEC 17025:2017 accreditation requirements and revise where needed.

Table S-2: FBU Nonconformance – Handling of Test or Calibration Items

Requirement:
ISO/IEC 17025 7.4.1 [redacted]

AR 3125 7.4.1.1 For all test items received except known origin individual characteristic database samples, the procedure shall:

a) address requirements for storage, packaging, and sealing of items to:

1. protect the integrity of all items

Observed State:

- There was no DOM, LOM, CES, or FBS that appropriately addressed how to package outsourced biological evidence to ensure the integrity of the evidence during shipment to vendor laboratories. A DFS memo, 1667_FW_FBU Outsourcing Process.pdf, [FBU examiner] (July 1, 2021), describes the outsourcing process.
  - SNA discovered that Signature Science, a DFS vendor laboratory, received DFS DNA swabs wet and at room temperature. The USAO brought this to the attention of the DFS in an email.
- CES05 – SOP for External Evidence Transfer Procedures was not sufficiently detailed to ensure biological evidence is appropriately packaged for shipment; it did not include the environmental

conditions appropriate for shipping biological samples (i.e., refrigeration, wet ice, dry ice) or room temperature).
  - The CEU was solely responsible for external evidence transfers, including evidence to be outsourced on behalf of the FBU.
- SNA found no evidence that a nonconformance investigation was initiated by the CEU, CSSU, Quality Unit, or FBU to determine the root cause of the receipt of wet and thawed evidence by Signature Sciences.

Macro Root Cause Effects:
- The organizational structure of the FSL tended to create information silos (i.e., they do not have an effective means to share information) among the different Forensic Units. See Section 4.1.3 DFS Leadership Organization for a discussion on the DFS and FSL organization.
- There was no oversight of the shipping process within the CEU, CSSU, or FBU.
- There was a lack of engagement between the FBU, Quality Unit, and the CEU regarding shipping of biological samples (see Section 4.1.9 Quality Management).
- There was no SOP or training for CEU staff that detailed how to package biological evidence for shipping.

Desired State:
- The DFS is responsive and transparent when issues arise that potentially impact the integrity of evidence as a consequence of shipping outsourced biological evidence.
- The DFS has a policy and procedures addressing biological evidence shipments, including;
  - Instructions for packaging and shipping biological evidence.
  - Training and competency assessment of CEU staff who perform the shipping tasks.
  - Steps to follow if evidence integrity is compromised during shipment.
- The FBU oversees the proper packaging and shipping of biological evidence.
- The FBU initiates and investigates nonconformances that arise as a result of shipping biological evidence.

Corrective Action Steps:
- Revise CES05 or create a new SOP instructing CEU staff how to package to properly preserve biological evidence for shipment, i.e., frozen, cold liquid, room temperature.
- Training Unit develops a training plan for instructing CEU staff on the biological evidence packaging and shipping procedure.
- FBU and CEU develop a policy and procedure for overseeing the shipping of outsourced biological evidence. The procedure includes:
  - The steps taken when evidence is received by the vendor or returned to the laboratory in unsatisfactory condition.
  - The process to ensure seamless communication and full transparency within and outside of the DFS so that the CEU, FBU, the vendor, and, if applicable, the USAO, PDS, and/or other relevant stakeholders are informed of the status of biological evidence shipments.
- Receipt of evidence by the vendor or returned to the lab in unsatisfactory condition initiates appropriate steps to minimize future risk to outsourced evidence (e.g., initiation of a nonconformance and a full root cause analysis).

Table S-3: FBU Nonconformance – Validation of MethodsTable

Requirement:

ISO/IEC 17025 7.2.2.1 [redacted]

AR 3125 7.2.2.1.1 The laboratory shall have a procedure for method validation that:
a) includes the associated data analysis and interpretation;
b) establishes the data required to report a result, opinion, or interpretation; and identifies limitations of the method, reported results, opinions, and interpretations.

Observed State:
The FBU staff conducted their internal validation for probabilistic genotyping following guidelines from SWGDAM and recommendations of the software developer. However, the validation studies have incomplete and/or incoherent sample information in their STRMix™, v2.3, and v2.4 internal validation summaries making it impossible to verify whether the validation data support the study conclusions and mixture interpretation SOPs.

Macro Root Cause Effects:
- The FBU's ability to critically review their validation summaries (v2.3, 2015, and v2.4 2017) was possibly hampered by their familiarity with the details of their validation experiments and the data generated, and the outcomes expected prior to conducting the experiments, causing them to omit essential details that would enable outside reviewers to decide whether the data depicted in the summaries supported the results and conclusions presented.
    - The FBU did not have an independent outside expert critically review their STRmix™ validation data against their validation summaries, which resulted in the drafting of incomplete and confusing validation summaries.
    - FBU overlooked or did not discuss outlier data, possibly due to confirmation bias, as exemplified by their omission of off-trend data from their discussion of the results.

Desired State:
DFS generates transparent and cogent summaries of the validation of the probabilistic genotyping system, STRMix™ v 2.3 and 2.4 that allows stakeholders to review the results independent of DFS input.

Corrective Action Steps:
- Update Section F of Internal Validation of STRMix™ v2.3 and v2.4 to include person-of-interest (POI) for the reported logLR and include the average peak height for the POI.
- Update Appendix 3 – Section D in STRMix™ v2.4 validation to include results for each POI tested. Order the results of all tables in the same order as in the sample name.
- Review the results and include an explanation for results that are not on trend or exhibit outlier behavior – e.g., rare allele consistent between POI and evidence, higher than expected average peak heights for the target mass. Contact the developers for input if unable to be reasoned by DFS. If outlier or off-trend results cannot be explained, additional studies may be warranted.

184 [redacted]
185

- Define each term, symbol, or index and use different terms, symbols, and index values to represent distinct variables. Create numbers and captions for all tables and figures.
- Have the validation studies, updated procedures, and corrective actions, if needed, reviewed by an independent mixture interpretation expert.

Appendix T: FCU Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements

Table T-1: FCU Nonconformance – Competency Testing

Requirement:
ISO/IEC 17025 6.2.6 [redacted]

AR 3125 6.2.3.1 All personnel who perform testing or calibration shall be competency tested. Testing or calibration includes the review and authorization of results and expressing an opinion or an interpretation. The competency test shall include practical examination(s) that cover the spectrum of anticipated tasks related to the test or calibration. The competency test intended results shall be achieved prior to performing the tasks on a test or calibration item.
AR 3125 6.2.3.2 Personnel who perform technical review of results or testimony, shall meet the competency requirements as specified in 6.2.3.1 for the testing or calibration tasks being reviewed.
AR 3125 7.7.1.g.)1 When a verification of a result is carried out:
a) it shall be conducted by an individual who is currently authorized to perform the testing;
b) a record of the verification shall be made and the record shall identify who performed the verification, when it was performed, and the result of the verification; and
c) the resolution of any discrepancy shall be recorded.
AR 3125 7.8.1.1.1 The authorizer of results shall review the technical record and document the review.

Observed State:
Authorizations for staff tasks as required by ISO/IEC 17025:2017 and AR 3125 were not up-to-date.

Macro Root Cause Effects:
The existing authorizations were based on the ISO/IEC 17025:2005 version. The FCU did not update the authorizations as required. The FCU and the Quality Unit did not follow up to make sure all new ISO/IEC 17025:2017 requirements were implemented. This nonconformance should have been found in the internal audit. See Section 3.2 Missed Opportunities for Improvement.

Desired State:
All FCU authorizations are in accordance with ISO/IEC 17025:2017 requirements.

Corrective Action Steps:
Update all authorizations to the current ISO/IEC 17025:2017 version. (The FCU lab has resolved this nonconformance and updated all authorizations.)

Table T-2: FCU Nonconformance – Selection and Verification of Methods

Requirement: **AR 3125 7.2.1.1.2** All test methods that involve the comparison of an unknown to a known shall require the evaluation of the unknown item(s) to identify characteristics suitable for comparison and, if applicable, characteristics suitable for statistical rarity calculations, prior to comparison to one or more known item(s).[186,187]
Observed State: FCU did not have a procedure for comparisons that involve an unknown to a known shall require the evaluation of the unknown item to identify characteristics suitable for a comparison prior to comparison to one or more known items.
Macro Root Cause Effects: FCU did not update its procedures to the AR 3125 requirements. The Quality Unit failed to review FCU procedures to determine if the FCU was in compliance using the internal audit process.
Desired State: All comparisons that involve an unknown to a known shall require the evaluation of the unknown item to identify characteristics suitable for comparison before comparison to one or more known items.
Corrective Action Steps: The FCU lab has resolved this nonconformance by updating the testing procedures

Table T-3: FCU Nonconformance – Control of Management System Documents

Requirement: **ISO/IEC 17025 8.3.2** [redacted]
Observed State: Obsolete versions of FCU operating procedures were on the DFS website. The FCU Quality Assurance Manual posted on the website was based on the outdated ISO/IEC 17025:2005 accreditation requirements.
Macro Root Cause Effects: FCU did not remove obsolete documents and replace them with current versions. FCU and Quality Unit did not perform an adequate internal audit
Desired State: DFS is transparent and has a controlled system that allows staff and appropriate stakeholders to access relevant versions of applicable documents in real-time. See Section 4.1.8 Data Management.

[186] Characteristics include, but are not limited to, alleles in a DNA profile, friction ridge detail in a latent print, striation detail on a bullet, features of handwriting, or criteria for evaluation of mass spectrometry fragments and ratios in a seized drug sample or a toxicology sample extract.
[187] This requirement is not focused on the process of assessing an unknown in order to identify the test item that will be the subject of further comparison. In these circumstances, it may be appropriate to perform a preliminary characterization of the known prior to the assessment of the unknown.

Corrective Action Steps:
Documents have already been removed from the website

Appendix U: LFU Nonconformance with ISO/IEC 17025:2017 and ANAB Forensic Laboratory Accreditation Requirements

Table U-1: LFU Nonconformance – Competency Testing

Requirement:
AR 3125 6.2.2.2 The training program for each function influencing the results of laboratory activities, to the extent necessary based on job function, shall include:[188, 189]
a) the knowledge, skills, and abilities needed to perform work
b) general knowledge of forensic science
c) the application of ethical practices in forensic science
d) criminal law, civil law, and testimony
e) provisions for retraining
f) provisions for maintenance of skills and expertise; and
g) criteria for acceptable performance

ISO/IEC 17025 6.2.3 [redacted]

AR 3125 6.2.3.1 All personnel who perform testing or calibration shall be competency tested. Testing or calibration includes the review and authorization of results and expressing an opinion or an interpretation. The competency test shall include practical examination(s) that cover the spectrum of anticipated tasks related to the test or calibration. The competency test intended results shall be achieved prior to performing the tasks on a test or calibration item.

ISO/IEC 17025 6.2.5 [redacted]

ISO/IEC 17025 6.2.6 [redacted]

AR 3125 6.2.6 NOTE: Authorization of personnel includes all aspects of testing or calibration including, as applicable, the use of equipment.

Observed State:
- SNA was not provided with any documentation that all LFU examiners successfully completed practical competency tests prior to authorization to perform casework duties at the DFS.
- RS&A conducted an assessment of the base skills of 11 unidentified LFU examiners in 2012. This assessment determined that the majority of the LFU examiners lacked basic essential skill sets. It is undetermined if DFS management ever acted on that report.
- The results of the reanalysis conducted by RS&A, involving 45 cases sent for independent evaluation for sufficiency, revealed that in 42 of the 45 cases where the LFU determined there were latent prints of no value to use for identification purposes, RS&A determined that many of the same prints were of sufficient value to be further examined.

[188] Past work experience and training may be substituted for portions of the training program to the extent that it has been demonstrated to be relevant and sufficient.
[189] ISO/IEC 17025:2017, Section 7.3 may be applicable to training programs.

- The LFU had authorization memos indicating the examiners received training and were authorized to perform examinations using the Mideo system equipment and software, using protocols they were not competent to use. The Mideo System authorizations had inadequate supporting documentation.[190]

Macro Root Cause Effects:

- LFU examiners' competency appeared to have been grandfathered in for those who transferred to DFS from MPD in 2012.
- LFU Manager[191]and the LFU Technical Leader[192] failed to properly assess the competency of all staff and authorized incompetent staff to use procedures.
- LFU Manager, LFU Technical Leader, Quality Unit Manager, and Training Unit Manager failed to work together to assess training effectiveness.
- LFU Manager and LFU Technical Leader failed to provide timely and adequate training on the Mideo system.
- Quality Unit internal assessments failed to uncover nonconformances with ANAB accreditation requirements.

Desired State:

- All LFU staff have documented training and competency testing demonstrating they are competent to perform all authorized methods and authorized to use equipment, to perform the industry-accepted Analysis, Comparison, Evaluation, Verification (ACE-V) fingerprint test method, as well as all other relevant job functions prior to casework authorization, including courtroom testimony.
- Copies of all training and competency test documentation are maintained by the DFS Training Support Unit.

Corrective Action Steps:

- Ensure the accuracy of case reports issued by past and current LFU examiners by implementing an in-depth review of LFU case files by qualified and independent external examiners.
- Ensure that all applicable LFU staff are technically competent to perform all required tasks, including new hires with previous experience in fingerprint analysis, regardless of the number of years of experience, are assessed and competency tested at the DFS.
    - Engage an outside organization to administer skill assessment tests to assess each employee's knowledge, skills, and abilities to perform their LFU duties. Assessment includes all theoretical and technical aspects of each person's job duties. Therefore, a variety of assessments will need to be created to cover all individuals in the LFU who have technical responsibilities.[193]Competency testing to include as applicable:
        - Mock case practical examinations, oral board, and written tests, and will incorporate moot court exercises,
        - Vision, form blindness and color acuity assessments,
        - The ability to see on-screen images, and
        - Use of Mideo and Photoshop equipment and software.
    - Design individual remedial training plans.

[190] LFU Technical Verification Monograph Issue Date: 1/18/2017, Issuing Authority Director.
[191] The job title based on the DC Department of Human Resources Job Description (DC Optional Form 8 signed by Karin Wiggins on September 26, 2018) denotes this position as Forensic Scientist Manager (Latent Fingerprint). LFU SOPs denotes this position as the LFU Manager.
[192] The job title based on the DC Department of Human Resources Job Description (DC Optional Form 8 signed by Karin Wiggins on December 16, 2016) denotes this position as Forensic Scientist Technical Leader (Fingerprint). LFU SOPs denotes this position as the LFU Technical Leader.
[193] This includes all Forensic Scientists, Forensic Evidence Analysts, Forensic Scientist Technical Leader, and if applicable, the Forensic Scientist Manager.

- Training, competency test results, work and equipment authorizations, and continuing education are documented and maintained with all supporting documentation by the DFS Training Support Unit.
- All LFU examiners are to be certified by the IAI.
- Remove from service all employees who cannot demonstrate technical competence in all aspects of their duties following remediation.

Table U-2: LFU Nonconformance – Selection and Verification of Methods

Requirement:
AR 3125 7.2.1.1.2 All test methods that involve the comparison of an unknown to a known shall require the evaluation of the unknown item(s) to identify characteristics suitable for comparison and, if applicable, characteristics suitable for statistical rarity calculations, prior to comparison to one or more known item(s).[194,195]
ISO/IEC 17025 7.2.1.5 [redacted]

Observed State:
- The Mideo LatentWorks® (Latent Print) program provides a method of documenting the ACE-V process; however, the Mideo documentation system is not used by all examiners.[196]
  - Some examiners stated that the reason they did not use this method is lack of sufficient training on the Mideo equipment and software.

Macro Root Cause Effects:
- LFU Manager, LFU Technical Leader, failed to provide guidance on proper and contemporaneous recording of all analyses notes.
- LFU Manager, LFU Technical Leader, failed to hold staff accountable to follow SOPs.
- Some of the LFU staff refused to use the Mideo software.

Desired State:
All LFU examiners follow comprehensive and clearly written SOPs, and examiners are competent to use all authorized methods and associated equipment, including the Mideo system.

[194] Characteristics include, but are not limited to, alleles in a DNA profile, friction ridge detail in a latent print, striation detail on a bullet, features of handwriting, or criteria for evaluation of mass spectrometry fragments and ratios in a seized drug sample or a toxicology sample extract.
[195] This requirement is not focused on the process of assessing an unknown in order to identify the test item that will be the subject of further comparison. In these circumstances, it may be appropriate to perform a preliminary characterization of the known prior to the assessment of the unknown.
[196] During the interviews with the Manager and Technical Leader it became apparent that the initial training on the Mideo System was not sufficient to adequately train all examiners in using the system and associated software. This was blamed on data communications issues and lack of actual hands-on time. A start-up date in 2019 was written into the procedures with the system not fully functional for close to two years.

Corrective Action Steps:

- Develop fully descriptive procedures that may include checklists; however, checklists are not to replace the requirement for clearly written, contemporaneous notetaking during the examination process.
- Fully implement the Mideo system beginning with appropriate training on the proper use of the equipment, software, and SOP, and assess competency on the theory and practice with oral, written, and practical competency tests, including courtroom testimony, prior to authorization to performing the method and use the equipment on casework.

Table U-3: LFU Nonconformance – Technical Records

Requirement:
ISO/IEC 17025 7.5.1 [redacted]

AR 3125 7.5.1.3 Technical records to support a report (including results, opinions, and interpretations) shall be such that another reviewer possessing the relevant knowledge, skills, and abilities could evaluate what was done and interpret the data.
AR3125 7.7.1.g).1 When a verification of a result is carried out:
b) a record of the verification shall be made and the record shall identify who performed the verification, when it was performed, and the result of the verification[198]
c) the resolution of any discrepancy shall be recorded.

Observed State:

- The LFU examinations were not sufficiently documented to ensure the validity of the results.
  - The LFU verification process was outlined in procedure LOM03 Section 5.2 Verification of Identification, Association and/or Other Critical Finding, and LFU04 Section 7.5 Verification. According to these two SOPs, all identifications need to be verified by a second analyst. Further, LFU04 Section 7.5.5. (1-6) states that all verification will be documented in the case file and include the:
    - Specific latent friction ridge impression examined,
    - Unique identifier of the exemplar(s) used to reach the conclusion, when applicable,
    - Anatomical source, when applicable,
    - Conclusion of the verifying examiner,
    - Initials, signature, or equivalent (e.g., unique identifier, electronic signature) of the verifying examiner, and
    - Date of verification.
- SNA found examples of cases where the supporting documentation for verifications was incomplete. For example, the case record provided to SNA for case number DFS-20-09538 did not contain all of the required information.
- Examiners did not always record notes contemporaneously with their examinations.
- Examiners documented that they followed the SOP but did not record the sequential steps of the analysis.

197 [redacted]

198 Verification may be recorded for each result verified or as a summary for all results verified.

  - For example, the case file did not include the Mideo and/or Photoshop software digital enhancement details. While this information is available in the Mideo Photoshop software files maintained at the laboratory, it was not provided to external reviewers with routine discovery, and as such, this basic case information must be additionally requested in order to verify the accuracy of the report and ensure that the LFS examiners followed their approved SOPs.
  - No lift scanning data were provided in the notes (e.g., scan resolution), how images were captured, and whether or how they were enhanced.[199]
- LOM03 Section 5.2 and LFU04 Section 7.5 did not require blind verification. Best practices in latent print analysis include blind verification where the verifier has no knowledge of what conclusions were made by the initial examiner. The verification procedure used by LFU examiners is not blind, independent or objective, and is vulnerable to confirmation bias.
- The verification and/or technical review processes lacked a review of all case evidence resulting in missed latent prints of value.

Macro Root Cause Effects:

- Unit Manager, Technical Leader, Training Unit, and Quality Unit failed to work as a team to identify nonconformances, revise SOPs as appropriate, and remediate staff. This resulted in:
  - LFU Manager and Technical Leader failed to ensure staff used best practices, followed appropriate SOPs for documenting their examinations to enable an independent review of the methodology used and reasoning behind the primary examiner's conclusions.
    - LFU Manager and LFU Technical Leader inappropriately accepted and approved checklists in place of requiring more descriptive narratives to support opinions.
  - LFU Manager, LFU Technical Leader, Quality Unit, and Training Unit did not work together to develop appropriate SOPs for blind verification and analysis.

Desired State:

- Case files and records contain complete documentation of the method used, data, and results, establishing an audit trail that guides the reviewer and/or verifier through the primary examiner's decision-making process from the initial determination of sufficiency through to the final conclusions drawn from the examination.
- Original documentation must be retained in the record and recorded at the best-required resolution, so the Verifier and Technical Reviewer also have the best images available.

Corrective Action Steps:

- Rewrite procedures to include more detailed descriptive narratives rather than checklists, abbreviations, and codes.
- Develop specific training on the use of the revised procedure for records.
  - Records include complete documentation of data from casework including, but not limited to, images, examiner notes and findings, verifier and other reviewer notes and findings, details of how images are photographically captured and enhanced, and all other information that will allow reconstruction of the casework process by an independent reviewer.
- Develop an SOP for blind verification and technical review following best practices used in the industry.
  - Using the new blind verification and technical review SOP, 100% of LFU examined casework is verified and technically reviewed, including all identifications, exclusions, and inconclusive results. The review includes a verification of the sufficiency of all print images submitted with each case.

[199] Based on an interview in LFU.

Councilmembers:

I am writing in regard to B24-838, "Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022."

I am not an expert on either law or forensics. However, I am a resident of DC and a friend/neighbor to many people who are accused of and/or victimized by crime. As such, I urge the Council to ensure that evidence is more carefully and accurately gathered and processed in order to ensure fair trials and appropriate investigations and to restore trust and credibility in all the related systems. It is ultimately dangerous to all of us who live and work in the city to have a haphazard, mistrusted set of evidence procedures.

We need better mechanisms for addressing complaints and questions about the forensic lab. We need a lab headed by a person who is an expert in running a forensic lab. And we need an oversight body that can act in response to serious concerns.

Thank you

Sincerely

Virginia A. Spatz

Ward 6

GOVERNMENT OF THE DISTRICT OF COLUMBIA
Executive Office of Mayor Muriel Bowser

Public Hearing
on

B24-0838, the "Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022"

Testimony of
Chris Geldart
Deputy Mayor for Public Safety & Justice

Before the
Committee on the Judiciary & Public Safety
The Honorable Charles Allen, Chairperson

June 30, 2022
Virtual Hearing
Washington, DC 20004
9:30 am

Good morning, Chairperson Allen, members, and staff of the Committee on the Judiciary and Public Safety. I am Chris Geldart, Deputy Mayor for Public Safety and Justice. I am here today to provide the Executive testimony on the Bill 24-0838, the "Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022."

We are all in agreement on the desired outcome for the Department of Forensic Science (DFS), which is to make the necessary changes for the agency to fully deliver on its mission to produce "high-quality, timely, accurate, and reliable forensic science with the use of the best available technology and practices, unbiased science, and transparency with the overall goal of enhancing public health and safety."

The December 2021 SNA International Forensic Laboratory Assessment Report, commissioned by Mayor Bowser, laid out a roadmap to help DFS regain and sustain compliance with forensic accreditation standards. Under my oversight, DFS has been working diligently on internal improvements and reforms that will allow it to regain and maintain compliance with forensic accreditation standards. DFS has developed detailed change management action plans to complete all corrective actions and recommendations in the SNA report. The Executive recognizes that some larger reforms will require legislation to accomplish, and we look forward to working with the Council on a path forward that will best serve the residents of the District.

I have closely reviewed the SNA report and I believe the Council's proposed approach is largely consistent with its recommendations. However, more discussion is needed to understand how the proposed agency structure and oversight will impact the agency's delivery of forensic science services in practice. Reasonable people can, and do, have different views on exactly what organizational structure and checks and balances on various parties' authorities over the District's forensic science agency will best serve the interests of public safety and justice. Experts, and we have heard from many of them, have different opinions on what makes a forensic science and public health agency the most effective, efficient, accountable, transparent and responsive to stakeholders.

We know that the District needs a forensic science lab that can reliably deliver accurate results and information using cutting edge technology and best practices, and we also know that it needs to be

able to receive more than 80,000 pieces of evidence[1] and conduct analyses for over 10,000 cases annually[2] to meet the workload coming its way.

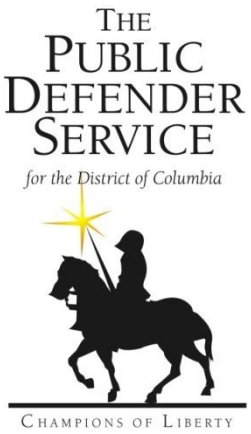
Meanwhile, as the Executive, Council and other stakeholders discuss potential options for larger reforms, DFS has been actively implementing reforms and improvements that are available within existing authority. DFS has designated an acting Chief Science Officer while formally creating the new position, and is establishing a standardized Forensic Scientist Technical Leader position for each forensic unit. It has reviewed and revised Standard Operating Procedures and will continue to do so periodically. It is conducting management training for conflict resolution this summer.

Earlier this month, DFS issued a solicitation to secure the services of an external consultant with extensive forensic laboratory and quality management experience to advise and support the DFS Director through the re-accreditation process. This consultant will help the agency establish a new Quality Support Unit led by a Chief Quality Assurance Officer which will oversee all quality management across forensic units.

I am continuing to work with the U.S. Attorney's Office and the Office of the Attorney General to determine the standard for DFS to meet that will enable them to resume prosecutions using DFS's in-house forensic analysis. We've determined that accreditation is the minimum requirement, necessary but not sufficient; and beyond that internationally recognized standard, work is ongoing to define the threshold for forensic services that will meet the District's needs and satisfy the interests of public safety and justice.

Similarly, we look forward to continuing to engage with you and other members of the Council to identify the best path forward for the agency's structure and oversight to ensure the sustainable delivery of high-quality forensic science services in the District.

[1] FY20 DFS Performance Report (83,529 evidence items received; 16,527 items processed in Evidence Processing Unit; 6,194 crime scenes processed; 4,387 forensic analysis requests from stakeholders; 7,990 fingerprint database (AFIS) entries; 770 DNA database (CODIS) entries; 2,271 firearms processed for test fire; 5,081 ballistic database (NIBIN) entries.
[2] FY19 DFS agency data: 10,653 cases processed by forensic units. Data requested February 2022.



TESTIMONY OF THE PUBLIC DEFENDER SERVICE
FOR THE DISTRICT OF COLUMBIA

concerning

Bill 24-0838
The Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022

Presented by

Katerina Semyonova

before the

COMMITTEE ON THE JUDICIARY AND PUBLIC SAFETY
COUNCIL OF THE DISTRICT OF COLUMBIA

Chairman Charles Allen

June 30, 2022

Avis E. Buchanan, Director
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The Public Defender Service for the District of Columbia thanks Chairperson Charles Allen and Judiciary Committee staff for the attention that they have dedicated to improving the Department of Forensic Sciences and for their efforts to restructure DFS to promote independence, transparency, and fairness. I am Katerina Semyonova, Special Counsel to the Director on Policy and Legislation at the Public Defender Service. Jessica Willis, Special Counsel to the Director for Forensic Science, and Kate Philpott, who is a forensic consultant to PDS, are with me today to answer questions.

PDS supports many aspects of Bill 24-0838, the Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022. PDS applauds the reforms in Bill 24-0838 that further the Lab's independence and that make meaningful advances in the sharing of information with the defense and the public. The Bill also strengthens the oversight capability of the Lab's Science Advisory Board, which would be renamed the Science Advisory and Review Board (SARB). However, PDS believes that additional changes to the SARB are warranted to ensure that the failures of the past – including the loss of accreditation by ANAB[1], the gross mismanagement of the agency and most grievously, the risk of contributing to false convictions[2] – are not repeated.

Bill 24-0838 restructures the Department of Forensic Sciences into the Forensic Sciences and Public Health Laboratory (the "Laboratory" or "Lab"). The Bill makes the Laboratory an independent agency pursuant to D.C. Code § 1-603.01 rather than a subordinate agency. This

[1] The ANSI National Accreditation Board (ANAB) withdrew DFS's accreditation in May 2021. ANSI stands for the American National Standards Institute.

[2] For a lengthy discussion of these failures including their causes, see PDS's testimony for the April 29, 2021, DFS Oversight Roundtable. Available at: https://lims.dccouncil.us/downloads/LIMS/47144/Oversight_Hearing_Record/HR24-0049-Oversight_Hearing_Record.pdf

means that the Laboratory can engage in independent policy making and will be untethered from the rules and policies promulgated by the Mayor's office. Most importantly, as an independent agency, the Laboratory will have independence from other agencies that are subordinate to the Mayor's office and are within the public safety cluster such as the Metropolitan Police Department. This level of independence is essential since the legitimacy and effectiveness of the Laboratory relies on it providing *unbiased* forensic analysis to its primary customers, MPD, the Office of the Attorney General and the United States Attorney's Office. Further, the Lab will soon have some role to play in the retesting of evidence in hundreds of cases that may have been impacted by the prior mismanagement of DFS. Even if that role is limited to evidence handling and distribution, the independence of the Laboratory is essential to re-establishing public trust. That trust begins with the Laboratory not reporting through the same mayoral chain of command as MPD.

Also in furtherance of the goal of independence and Council oversight, Bill 24-0838 provides that mayoral nominees for the position of director of the Laboratory are deemed disapproved if they are not approved by the Council within 90 days. This reverses the current default of approval of nominees for subordinate agencies and gives the confirmation process more meaning. Similarly, a 6-year term for the director of the Laboratory and limiting removal to instances when the mayor has good cause, should support the development of expertise, best practices, and autonomy for the director.

However, the Bill's requirement that the Laboratory director have management-level experience supervising public sector employees in an agency with more than 50 employees together with the preference for experience in District government unnecessarily constrain the selection process for the Laboratory's director. These provisions prevent the selection of

qualified individuals from the private sector, including potential candidates from other applied science settings, such as large private labs or from hospitals, both of which could bring much needed scientific and management expertise to the new Laboratory.

Further, both the qualifications and the duties of the leadership of the Laboratory should reflect a commitment to internal quality assurance. For instance, a commitment to advancing quality assurance systems and practices should be part of the criteria for the appointment of the Laboratory director. While the Bill requires the CFSO to perform many functions related to quality assurance, it should also explicitly designate the CFSO as the individual who oversees the Lab's quality assurance system.

PDS also deeply supports the Bill's improvements in defense and public access to Laboratory information. The Bill expands on the information that must be publicly available and requires the Laboratory to upload information to its website – reforms that are significant improvements in the service of transparency and fairness – and that do not require defense counsel and the public to jump through the needless additional hoop of asking for the information. For instance, the Bill requires the Laboratory to publicly disseminate its validation studies, including underlying data. Validation studies show how a particular methodology used by the Lab performs, including its degree of reliability and its limitations, under a range of conditions that reflect the realities of casework. Under current practice, DFS has only made summaries of its validation studies publicly accessible. In its review analyzing the scientific foundations of DNA interpretation methods, the National Institute for Standards and Technology (NIST) noted that publicly available validation summaries like DFS's do not include enough information to assess either the quality of the validation study or the reliability of the method

being studied.[3] In fact, the authors reviewed DFS's publicly available validation summaries and specifically noted that these summaries fail to provide enough information even to determine what range of conditions were studied.[4] As the NIST report concludes, the underlying validation data should be made publicly available[5] as access to this data is necessary to assess the reliability of methodologies that are utilized to deprive individuals of their liberty.[6] The SNA audit came to essentially the same conclusion: DFS should "undertake an initiative to develop and implement a data management portal on the DFS website to allow appropriate stakeholders (e.g. USAO, OAG, PDS) to access relevant versions of applicable documents and records in real-time (e.g. case files, validation studies, training records, proficiency tests, Q-CARs and Q-PARs).[7]

This Bill also takes the important step of requiring the Laboratory to make publicly available all reports that address "quality assurance including quality corrective actions, quality preventative actions, and other quality nonconformities." Quality assurance systems are designed to ensure the reliability of a lab's results by investigating the root causes of mistakes or other unit-wide problems. At DFS, most commonly, the results of these internal investigations were

[3] Butler JM, Iyer H, Press R, et al (2021) DNA Mixture Interpretation: A NIST Scientific Foundation Review. ("NIST Report") Available at: https://nvlpubs.nist.gov/nistpubs/ir/2021/NIST.IR.8351-draft.pdf. at p. 87 ("publicly available internal validation summaries [using as an example DFS's validation summaries] often do not provide sufficient information to assess factor space coverage. Further, these summaries typically do not provide data points . . . and associated information necessary to assess the degree of reliability and performance under potential case scenarios.").

[4] NIST report at Table 4.5, p. 75.

[5] NIST report at p. 75 ("To allow for external and independent assessments of reliability going forward, we encourage forensic laboratories to make their underlying PGS validation data publicly available").

[6] NIST report at p. 83 ("results cannot be *externally and independently demonstrated to be reliable* without access to underlying performance data. To establish and support clear reliability boundaries (i.e., a certain number of contributors, a particular quantity of DNA, a specific degree of allele sharing among contributors), data need to be available to users of the information (e.g., DNA analyst or stakeholders using their results)").

[7] D.C. Department of Forensic Science Laboratory Assessment Report, by SNA International, December 8, 2021, page 104.

memorialized in two kinds of reports: Quality Preventative Action Reports (Q-PARs) and Quality Corrective Action Report (Q-CARs).[8] These reports are essential for providing information about the functioning of the lab and may reveal systemic or localized issues. Allowing the defense and the public to have access to this information could potentially sound alarm bells about corruption and mismanagement before the Laboratory falls into disarray and once again faces the loss of its accreditation. This reform shines a light on practices that should never have been hidden from the public given that forensic evidence may be the difference between an erroneous guilty verdict and a person's freedom. The enormous public investment in the agency warrants and requires this kind of transparency to begin rebuilding trust.[9]

The USAO's arguments in opposition to these discovery parity measures are flawed. At the public hearing on this Bill, USAO Special Counsel for DNA and Forensic Evidence Litigation Lisa Kreeger-Norman argued against these provisions by erroneously asserting that it is the dilatory conduct of defense attorneys in not examining discovery or turning it over to their experts that causes delays of trials and that essentially, discovery production can simply be left in the hands of the USAO. [10] This is a stunning and brazen mischaracterization of the USAO-DC's

[8] According to DFS's manual, a Q-CAR is the report of an action or event that does not conform to the policies and procedures of DFS or to that of DFS's accrediting bodies. The purpose of a quality corrective action report is to bring about improvement and a correction of the non-conformity. *See* DFS Manual. Available at: https://dfs.dc.gov/sites/default/files/dc/sites/dfs/publication/attachments/DOM%20-%20Practices%20for%20Quality%20Corrective%20Actions.pdf
According the DFS manual, a Q-PAR is a preventative action undertaken to identify opportunities for improvement. It is important to note that for years, however, DFS has categorized significant failures at DFS, such as dry labbing, as Q-PARs. DFS Manual, Procedures for Quality Preventative Actions. Available at: https://dfs.dc.gov/sites/default/files/dc/sites/dfs/publication/attachments/DOM%20-%20Procedures%20for%20Quality%20Preventive%20Actions_0.pdf

[9] Given DFS's prior efforts to obfuscate the real nature of nonconformities and practices in removing names from Q-CARs and Q-PARs, the Bill should go further in clarifying that all reports and any documents related to nonconformities or Q-CARs and Q-PARs should be publicly available and that those documents and reports must remain unredacted.

[10] Ms. Kreeger-Norman's testimony was as follows: "I would sort of quarrel with the statement that immediately turning things over to the defense will make trials come more quickly**.** In the 33 years that I've been a prosecutor,

conduct in Superior Court.[11] Following Ms. Kreeger-Norman's statement and in the space of just a few hours, PDS collected dozens of case examples where judges made discovery and/or *Brady* findings that the USAO failed to timely provide critical materials, including material related to forensic testing to the defense.[12] Sanctions imposed on the USAO ranged from outright dismissals to trial continuances. These sanctions are indicative of the causal connection between the USAO's failure to disclose information and the defense's ability to be ready for trial. The USAO's claim that discovery should not be independently and immediately provided by the Lab because the USAO can fulfill that need is belied by this record.

Another important reform in Bill 24-0838 restructures the Science Advisory Board and expands its oversight role. The Science Advisory Board would become the Science Advisory and Review Board (SARB), its membership would grow from nine to eleven members, it would have the ability to hire staff, and the SARB would take on a greater oversight role over the Laboratory. An essential part of this reform would require the SARB to issue reports or to document its investigation of the Laboratory and to make those reports and documents available to the public. Like the reforms related to Laboratory documentation, validation studies, and Q-CARs and Q-PARs, public access to SARB investigations and reports is a key step toward

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it's never been the day that the defense received information that caused the delay. It's the date in which they've started to actually read it, use it, turn it over to their experts and get ready to go. And so turning it into giving it to them immediately does not address that in any way shape or form and I don't want us to lose sight of that." *Available at* https://fb.watch/dZH7dyJRl-/ from 4:07:56- 4:08:28

[11] While Ms. Kreeger-Norman was speaking on behalf of the USAO-DC and responding to prior testimony about the practices in D.C. Superior Court, it should be noted that Ms. Kreeger-Norman is new to D.C. criminal prosecution. Perhaps Ms. Kreeger-Norman previously prosecuted cases in an office where the discovery and *Brady* delays that plague the USAO-DC are not common. *See* Brand, Jessica, *U.S. Attorney's Office that prosecuted Inauguration Day Protestors has history of misconduct findings,* THE APPEAL, July 30, 2018 *available at* *https://theappeal.org/us-attorneys-office-that-prosecuted-inauguration-day-protesters-has-long-history-of-misconduct/*.

[12] Pursuant to PDS attorneys' ethical obligation to protect their clients' confidentiality, PDS is not sharing case citations.

accountability, transparency, and independence. It is an essential part of rebuilding public trust and constitutes what the District should make easily available to every defense attorney and individual charged in a criminal case. The Council should not allow any secrecy or toxic self-preservation by an agency particularly when liberty and lifelong collateral consequences are at stake. To that end, the Council should go farther and, as with Laboratory quality assurance reports, SARB reports, by statute, should be made publicly available through the Lab's website. Individuals should not have to go through the Freedom of Information Act process or wait for SARB to respond to requests for its reports and investigation documents.

While PDS appreciates the expanded role of the SARB and the greater access to SARB reports, PDS has concerns about the membership of the SARB. As drafted, the eleven-member board would include five forensic scientists from the disciplines of DNA analysis, controlled substances analysis, firearms and toolmark examination, fingerprint comparison, and computer forensics. Practitioners in these fields almost exclusively come from law enforcement backgrounds. In addition to the forensic practitioners, the bill currently reserves two positions for experts not in quality management, but simply in accreditation. The only two members with expertise in sciences developed outside law enforcement -- epidemiology and microbiology—relate to the work of the public health lab. The Bill also provides for one member to have expertise in human factors or statistics and for one member to have experience in criminal prosecution or defense.

There are several flaws with this proposed composition of the SARB. The SARB composition does not allow for the neutral, robust, inter-disciplinary, science-first oversight this Bill otherwise seeks to establish. Foundational sciences are undervalued and under-represented on the SARB. There is no need for the SARB to have the perspective of five different forensic

practitioners, two of whom are from similar pattern matching disciplines, and all of whom are likely to have spent the majority of their careers in law enforcement-run laboratories. Reserving two member positions for experts in accreditation is also misguided. As recent events have demonstrated, accreditation is no guarantee of reliable results, and should be thought of as a quality assurance floor, not a ceiling. Indeed, accreditation has been roundly criticized as a process that prizes standardized reporting formats, checklists, and the existence of protocols over sound scientific practice and reliable results.[13] Therefore, PDS recommends converting these two positions into one position for an expert in quality management.

Further, the overpopulation of the SARB with forensic scientists leaves it with too few spaces remaining for critically important members. The SARB should include both a statistician and a human factors expert. Statistics—which are used to communicate the significance of a "match"— are at the heart of the relevance of forensic evidence and yet are frequently misapplied in practice.[14] Scientists from numerous organizations and stakeholders with a variety of perspectives have recognized the critical role statistical expertise plays in strengtheningforensics by providing an empirical framework for assessing and expressing

[13] Audits and accreditation are well-known to miss major technical problems and their "significance . . . has often been overstated . . . as a guarantee of quality." *Raising the Bar: Progress and Future Needs in Forensic Science Before the H. Comm. on Sci., Space, and Tech.* 5 (2019) (statement of Lynn Garcia, General Counsel, Texas Forensic Science Commission).

[14] *See, e.g.* National Academy of Sciences, *Strengthening Forensic Science in the United States* (2009), at 45 ("providing a statistical exaggeration of results" listed as a cause of wrongful convictions).

uncertainty.[15, 16] Forensic evidence ranging from the complicated probabilistic likelihoods utilized by forensic DNA analysts, to the bare assertions of "match" by analysts in pattern matching disciplines like fingerprint and firearms examination, raise issues and challenges that only a statistician is qualified to address.

A human factors expert is needed because, as the prior turmoil in the firearms and fingerprints units have demonstrated,[17] there are unique challenges to subjective disciplines that rely exclusively on human judgment. As with statisticians, human factors expertise is widely understood to play a critical role in strengthening the practice of forensic science.[18] An expert in

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[15] *See, e.g. id.* at 189; President's Council of Advisors on Science and Technology, *Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods* (2016), at 14 (recommending "an advisory committee of experimental and statistical scientists from outside the forensic science community" to advise regarding the scientific validity of currently and newly developed forensic methods), 15-16 (recommending an expert embedded on forensic standards-making bodies "to provide direct guidance on the applications of measurement and statistical principles to the developing documentary standards"); National Commission on Forensic Science, *Statistical Statements in Forensic Testimony* (2017 draft), available at https://www.justice.gov/archives/ncfs/page/file/952466/download; American Statistical Association, ASA Position on Statistical Statements for Forensic Evidence (2019), available at https://www.amstat.org/asa/files/pdfs/POL-ForensicScience.pdf.

[16] The Organization of Scientific Area Committees for Forensic Science (OSAC) "strengthens the nation's use of forensic science by facilitating the development and promoting the use of high-quality, technically sound standards. These standards define minimum requirements, best practices, standard protocols and other guidance to help ensure that the results of forensic analysis are reliable and reproducible." OSAC, About OSAC, available at https://www.nist.gov/organization-scientific-area-committees-forensic-science. As such, it serves a function analogous to the prospective role of the SARB. OSAC includes a Statistics Task Group, a body of statisticians whose members are embedded on the discipline-specific, standards-developing subcommittees of OSAC "to provide a statistician's perspective for the subcommittee". OSAC, Statistics Task Group, available at https://www.nist.gov/osac/statistics-task-group.

[17] Brandon Garrett and Julia Leighton, *Ignoring Deep-Seated Problems at D.C.'s Crime Lab Will Cost Lives and Taxpayers*, Washington Post, June 11, 2021. Available at: https://www.washingtonpost.com/opinions/2021/06/11/dc-crime-lab-disaster-council-bowser/

[18] Forensic policy and standards making bodies have made an express point of incorporating human factors expertise. *See, e.g.,* National Commission on Forensic Science, Human Factors Subcommittee, available at https://www.justice.gov/archives/ncfs/human-factors ("examined factors that influence the performance of forensic scientists as they draw conclusions from physical evidence and communicate their findings in the legal system and recommend[ed] policies and procedures to improve the performance of forensic laboratories and their personnel in the various roles they perform"); OSAC, Human Factors Task Group, available at https://www.nist.gov/organization-scientific-area-committees-forensic-science/human-factors-task-group ("selected based on their experience in psychology, cognitive science or a related social science discipline, and knowledge of social science literature on human judgment, decision making, observer effects, communication and cognitive bias",

human factors will provide guidance on how to minimize extrinsic and cognitive bias, strengthen standards that govern these subjective methods, and scrutinize the quality practices designed to catch and fix mistakes.

The SARB should also include a defense attorney rather than requiring someone with experience in criminal defense or prosecution. The prosecution perspective is already amply represented through SARB members who have spent their careers in law enforcement, through the fact that MPD, the USAO, and the OAG are the Laboratory's largest customers, and given the power the USAO and OAG have over the Lab in terms of choosing whether to sponsor the Lab's forensic examiners as witnesses. At the same time, a defense perspective would help the SARB identify the depth of information that may be exculpatory and provide insight into what Laboratory practices should be investigated and corrected. A defense perspective would also assist in understanding the breadth of documentation that should be available through the Laboratory.[19]

PDS commends the Council for conceiving of the SARB as a body that provides rigorous oversight and that is equipped to fully investigate problems within the Lab. PDS believes that empowering this body is crucial to ensuring the Lab's independence from its law enforcement stakeholders and to ensure the reliability of the Lab's output. Equipping the SARB with the proper resources, access, and a mission of creating accountability means there should be no excuse for the prosecutors' offices to hire their favored experts and unilaterally audit DFS as

task group members are embedded in OSAC subcommittees "to provide a human factors perspective to the subcommittee").

[19] As proposed by PDS, the membership of the SARB would include 11 members: one member who is an expert in quality assurance, one member who is a statistician, one member who is an expert in human factors, one member who is an expert in epidemiology, one member who is an expert in microbiology, two members who are experts in the foundational sciences of chemistry, biology, or physics, one member who is a defense attorney, and three members who are experts in forensic sciences including DNA analysis, controlled substances analysis, firearms and toolmark examination, fingerprint comparison, or computer forensics.

they did in 2020. Further, prosecution-led audits cannot offer a consistent quality control on the Lab. While the Initial Review and Audit of Selected Casework of the Firearms Unit was initiated at the request of the United States Attorney's Office and the Office of the Attorney General in April 2020, there is evidence that in 2017, the USAO knew of substandard casework and possible dry-labbing by a firearms examiner named Kevin Webster but chose not to further investigate the Webster issues or make a referral to the Office of the Inspector General for investigation.[20]

In this respect, PDS views the strengthened SARB as a victory for true independence and oversight. However, the language of § 5-1501.12a should be slightly amended to ensure the SARB functions as an effective oversight body, and not as a second quality management unit. Fixing this would require minor tweaks to that subsection to make clear that the Lab must apprise the SARB of the results of its own disciplinary and quality investigations, that the SARB must review these investigations, request documents and other underlying information as necessary, and may then choose to conduct an investigation of its own. As currently written, sections (a)(1)-(2) could be read to require the SARB to open an investigation every time there is a disciplinary or testing problem. While PDS encourages hands-on, proactive and meaningful SARB oversight, this reading risks redundancies in workload that could compromise effective oversight.

PDS appreciates the Council's and the Committee's work on these important issues and is ready to assist the Committee as this legislation moves forward.

[20] See PDS testimony before the Judiciary and Public Safety Committee, DFS Oversight Hearing, April 29, 2021, page 5. Available at: https://lims.dccouncil.us/downloads/LIMS/47144/Oversight_Hearing_Record/HR24-0049-Oversight_Hearing_Record.pdf

STATEMENT OF JOSE MARRERO
OFFICE OF THE ATTORNEY GENERAL FOR THE DISTRICT OF COLUMBIA

BEFORE COUNCILMEMBER CHARLES ALLEN, CHAIRPERSON
COMMITTEE ON THE JUDICIARY AND PUBLIC SAFETY

PUBLIC HEARING ON

B24-0838, THE "RESTORING TRUST AND CREDIBILITY TO FORENSIC SCIENCES AMENDMENT ACT OF 2022"

THURSDAY, JUNE 30, 2022, 9:30 A.M. – 1:30 P.M.
VIRTUAL HEARING VIA ZOOM

Good afternoon. My name is Jose Marrero. I serve as Assistant Chief of the Criminal Section of the Public Safety Division of the Office of the Attorney General for the District of Columbia (OAG). Thank you, Chairman Allen and Councilmembers, for the invitation to speak with you regarding the Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022.

For over two years, OAG raised the alarm that there were significant, systemic failures at the Department of Forensic Sciences (DFS)—failures that would undermine the integrity of criminal convictions, faith in the criminal justice system, and public safety in the District of Columbia. Throughout, we made clear that our interest was in determining the existence, extent, and cause of any failures so that we could work together to address them. Unfortunately, DFS refused to cooperate in that effort until, after years of denial, it lost its accreditation and was required to cease operations. When a full assessment of the lab finally was conducted in the wake of the accreditation loss, SNA International identified staggering deficiencies at the lab. These deficiencies may have resulted in wrongful convictions, while allowing wrong-doers to walk free, making the District less safe. They have made it more difficult for prosecutors to do our jobs, and it will cost District taxpayers millions of dollars to identify and correct these errors. The importance of addressing these failures, and ensuring they never are repeated, cannot be overstated.

Passing the Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022 is one of many steps necessary to rehabilitate and reestablish confidence in the District's crime lab. OAG thanks Chairman Allen and the Council for their willingness to take on the difficult and important task of redesigning DFS to prevent a calamity like this from ever occurring again. At bottom, the SNA report and OAG's experience make clear that what is needed is greater accountability for lab leaders, an effective quality assurance program, and increased oversight of the lab. This legislation meets those needs and offers a thoughtful and creative approach to addressing the significant issues at DFS. Having discussed the legislation's outlined reform plan extensively with experts, some of whom you will hear from today, we offer recommendations for modest changes to the legislation to help ensure it accomplishes these goals.

First, the bill would make DFS—renamed the "Forensic Sciences and Public Health Laboratory"—an independent agency. In essence, this means that the director of the Laboratory would report to the Council, rather than the Mayor, and that the Laboratory would be empowered to seek the funds it needs directly from the Council. This important change will help allow the laboratory's Director to be frank and transparent about what is required to rehabilitate the Laboratory and help ensure the lab is appropriately funded.

As we now know, systemic issues at the lab were longstanding, and were allowed to fester and compound for years. For example, SNA determined in its audit that, in 2012, as the crime lab was transitioning from the Metropolitan Police Department to the newly created DFS, only two of 11 fingerprint examiners passed skills assessment tests. This was reported to DFS at the time but no action appears to have been taken to ensure fingerprint examiners were qualified to perform their critical function. Moreover, when OAG and the U.S. Attorney's Office discovered information about additional problems at DFS, those concerns were repeatedly dismissed and downplayed. With this as backdrop, it is imperative that the Laboratory's new director be able to assess and report on what they find in the laboratory, and what will be required to fix it, with candor. The only way to accomplish this is to allow the Laboratory's director to report to the Council and to allow for removal of the Director only for good cause. The legislation's provisions regarding

independence also are necessary if we are to attract qualified candidates with integrity to serve in leadership roles at the Laboratory by ensuring that Laboratory leaders are sufficiently empowered to tackle the significant challenges the agency faces.

This independence also will allow the Laboratory's Director to be frank with the Council about how much funding the Laboratory needs to operate effectively. This is important because it appears that one of the causes of failures at DFS may have been a lack of adequate staffing, resulting in pressure being put on staff to report test results faster than was possible. Lab leaders emphasized speed over accuracy, and staff reportedly took short cuts, including reporting having examined evidence and providing results without ever taking the evidence out of its container. While this behavior certainly cannot be blamed entirely on funding, allowing lab leaders to report directly to the Council may help ensure that they can speak frankly about the staffing and funding needed to produce accurate results in a timely manner.

Second, the legislation would significantly expand the role of the Laboratory's outside oversight body—called in the legislation the "Science Advisory and Review Board," or "SARB." The legislation expands the number of members of this body, including by requiring that members have a wide range of relevant expertise. Importantly, it allows SARB members to access all documents necessary for it to accomplish its mission and requires that SARB members be compensated. This expanded and more robust SARB is an important reform that has the potential to provide critical oversight and collaboration to identify and resolve issues as they arise. We do think, however, that some adjustments to the scope of the SARB's responsibility are warranted to ensure it can provide effective oversight.

The expanded scope of the SARB's responsibilities would outsource much of the lab's quality assurance program to the SARB, stripping Laboratory managers of their responsibility to ensure that lab processes are effective and error free. The impetus for this is well thought out—DFS failed entirely to execute this responsibility. But outsourcing so much of this responsibility may reduce accountability and effectiveness by decreasing the responsibility of the Laboratory's leadership. It is ultimately the responsibility of Laboratory leaders to develop and implement a robust quality assurance program and ensure protocols are followed to the letter. While external oversight is critical, it cannot come at the expense of ensuring that there are effective leaders and a robust quality assurance program in the Laboratory.

In addition to moving the focus away from lab leadership, outsourcing so much of this responsibility also will overburden SARB members, reducing their ability to identify the major, overarching failures of the kind we are looking to address here. This is especially so since SARB members will not be full-time employees. We therefore recommend that the SARB's responsibilities be refocused on investigating more major allegations of process failures or impropriety of the lab and regularly reviewing the laboratory's quality assurance program, while using other mechanisms, including those included in this bill, to ensure the lab has a robust and effective quality assurance program and that its leaders act with integrity.

Third, the bill reimagines the lab's management structure. It would place at the head of the lab—the Director—someone with significant management experience but reduced scientific knowledge and background. The scientific knowledge would be held by the person in a newly created position—the Chief Forensic Sciences Officer—who reports to the Director but is a separate

Council-confirmed Mayoral appointee. This is a thoughtful approach, clearly designed to address the significant leadership failures SNA identified. We think it warrants additional consideration, however, to assess whether the legislation strikes the right balance between management and scientific experience as requirements for Laboratory leadership.

We look forward to continuing to discuss the best approach to fixing DFS and we are enormously grateful to the Council for taking up the mantle of reform. This legislation reflects many months of thought and engagement, and a willingness to take bold steps to ensure this catastrophe never recurs. The stakes could not be higher. Having a functioning crime lab upon which District residents can rely is critical to public safety, and it is critical to justice and fairness. We look forward to continuing to work with the Council, relevant experts, DFS, and all stakeholders to ensure that this legislation will allow OAG and the public to have confidence and trust in the reliability of scientific testing at DFS. Thank you for holding this hearing and for your work to protect District of Columbia residents and the integrity of our criminal justice system.

BEFORE THE
COUNCIL OF THE DISTRICT OF COLUMBIA
COMMITTEE ON THE JUDICIARY AND PUBLIC SAFETY
COUNCILMEMBER CHARLES ALLEN, CHAIRMAN

PUBLIC HEARING

on

Bill 24-0838, the "Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022"

STATEMENT OF ELANA SUTTENBERG
SPECIAL COUNSEL TO THE UNITED STATES ATTORNEY
UNITED STATES ATTORNEY'S OFFICE FOR THE DISTRICT OF COLUMBIA

Thursday, June 30, 2022, 9:30 a.m.

Virtual Hearing via Zoom

Chairman Allen and Members of the Council:

My name is Elana Suttenberg, and I am the Special Counsel for Policy and Legislative Affairs at the United States Attorney's Office for the District of Columbia (USAO-DC). I am accompanied today by my colleague, Lisa Kreeger-Norman, Special Counsel for DNA and Forensic Evidence Litigation, who is available to assist in answering the Committee's questions. I am also accompanied by three experts in the field of forensic sciences, James Carroll, Todd Weller, and Dr. Bruce Budowle, who have served as an independent audit team jointly hired by USAO-DC and the D.C. Office of the Attorney General (OAG-DC). James Carroll is a forensic scientist with 24 years of experience in the analysis of firearm and ammunition evidence, who is currently serving as the assistant director of one of the largest fully accredited crime laboratories in the United States, with extensive experience in crime laboratory management and quality assurance. Todd Weller is a forensic scientist with 22 years of experience, including casework in the drug chemistry, crime scenes, DNA, and firearm disciplines, the former Chair and current Vice Chair of the Organization of Scientific Area Committees Firearms and Toolmarks Subcommittee. Dr. Bruce Budowle has approximately 40 years of experience in the forensic field, including service as a Commissioner on the Texas Forensic Science Commission and Director of the Center for Human Identification. We thank you for the opportunity to appear at today's public hearing on Bill 24-0838, the "Restoring Trust and Credibility to Forensic Sciences Amendment Act of 2022."

At the outset, I want to credit my colleagues at USAO-DC for being the first to recognize an issue at the D.C. Department of Forensic Sciences (DFS) and to elevate it both within our office and outside of our office. To be clear, the *only* reason that the public is aware of these issues at DFS is because prosecutors at USAO-DC recognized exculpatory evidence, appreciated that this evidence stemmed from a significant issue at DFS, and committed themselves to investigating and addressing the root causes of these issues. These prosecutors are to be commended for their integrity and commitment to justice on behalf of District residents.

Soon after USAO-DC's discovery of these issues, we collaborated with OAG-DC, hiring an independent audit team comprised of three of the top forensic scientists in the country. As this Committee is aware, the findings of that audit team ultimately brought to light serious issues within DFS. Those issues were confirmed and expanded upon by the audit completed by SNA International (SNA) at the request of DFS.

We also want to ensure that this Committee and the community are aware of the expenditures that USAO-DC has undertaken to ensure the reliability of evidence in pending criminal cases by outsourcing evidence to outside labs for forensic testing. Historically, even before these recent issues arose at DFS, USAO-DC has outsourced cases to outside labs for various reasons—including, for example, to conduct a type of DNA testing that DFS does not perform, such as YSTR DNA testing or mitochondrial DNA testing; to DNA test on additional items of evidence; to test DNA at a rate faster than DFS can accommodate; to consolidate forensic testimony from multiple experts to one expert; or, in the case of a *Daubert* hearing expert, to obtain extremely qualified experts who have impact and work beyond DC and DFS. Additionally, where DFS outsources forensic testing—such as DNA and firearms testing—USAO-DC pays the substantial costs associated with expert preparation for trial and expert

testimony at trial.[1]

Costs that USAO-DC has incurred to outsource testing (and accompanying expert testimony, if a case proceeds to trial) have significantly increased in recent years, particularly for firearms experts and fingerprint experts. The costs below are current as of June 15, 2022.

Below is a breakdown of USAO-DC obligated contracts to outsource firearms examination and expert testimony, by the original fiscal year of the contract:

Fiscal Year	Amount Paid	Amount Obligated
2018	$125,371.02	$192,393.52
2019	$85,099.62	$153,192.77
2020	$459,783.06	$608,248.06
2021	$471,640.56	$814,523.35
2022	$154,294.86	$723,485.11
Grand Total	**$1,296,189.12**	**$2,491,842.81**

Below is a breakdown of USAO-DC obligated contracts to outsource fingerprint examination and expert testimony, by the original fiscal year of the contract:

Fiscal Year	Amount Paid	Amount Obligated
2018	$9,726.98	$11,826.98
2019	$5,416.27	$5,416.27
2020	$0	$0
2021	$178,962.74	$320,716.35
2022	$25,459.64	$128,453.39
Grand Total	**$219,565.63**	**$466,412.99**

Below is a breakdown of USAO-DC obligated contracts to outsource DNA examination and expert testimony, by the original fiscal year of the contract:

Fiscal Year	Amount Paid	Amount Obligated
2018	$460,785.89	$861,724.27
2019	$480,829.38	$1,152,867.39
2020	$286,686.15	$757,926.74
2021	$307,276.34	$678,513.60
2022	$69,087.49	$618,621.89
Grand Total	**$1,604,665.25**	**$4,069,653.89**

[1] The SNA report noted the following with respect to outsourcing: "In 2020, the FBU released more reports from the casework that was outsourced to commercial vendors for testing than from the casework they processed in-house (1066 vs. 635). At the time of SNA's assessment, the FBU had a total of 14 individuals that were regularly proficiency tested for continued casework competency: 1 technical reviewer, 2 technicians, and 11 reporting analysts. The DFS should have the capacity to address all of its customers' forensic biology service requests in-house. While outsourcing is acceptable when there are surges in casework or to satisfy customers' requests for specialized services (e.g., genetic genealogical and mitochondrial DNA analyses, respectively), it is easier for the client to have their casework processed by one laboratory. The coordination of discovery and courtroom testimony is streamlined when the customer uses one laboratory." *See* SNA International, *DC Department of Forensic Sciences Laboratory Assessment Report*, at 48 (Dec. 8. 2021).

As to the bill under consideration today, we appreciate the Committee's attention to the significant issues at DFS, and our shared desire to chart a path forward for DFS. We all want to ensure that the District is served by a forensics lab of the highest quality and integrity, and legislation is an important part of working toward that goal.

Our testimony today will focus on certain key issues in the bill that relate to prosecutions in the District. In addition to the concerns highlighted in our testimony, there are additional concerns related to appropriate management structures in a forensics laboratory, or to best practices for a forensics laboratory. We defer on these questions to the expertise of the USAO-DC/OAG-DC independent audit team, as they have significant experience in managing high-quality labs.

Accountability to Customers

We recommend that the statute make a change to clarify the Laboratory's relationship with customers.[2] In this context, customers include the agencies that the Laboratory provides services to pursuant to D.C. Code § 5-1501.06(b) and (c). Whether or not the Laboratory is deemed independent, prosecutors are the gatekeepers for seeking the admissibility of forensic evidence at trial, and must have full and timely access to all necessary materials from the Laboratory, both to ensure that the evidence we seek to introduce is reliable and to ensure that we have complied with all of our discovery obligations to defense counsel. Accordingly, it is fundamental that the Laboratory be accountable to its customers, including prosecutors. To highlight the importance of this duty, we propose adding a new subsection to D.C. Code § 5-1501.02(b) to clarify that the mission statement of the Laboratory includes "a commitment to timely response and accountability to customers."

Powers and Duties of the Laboratory

The bill proposes adding the following statutory language: "When evidence is submitted to the Laboratory for forensic analysis, the Laboratory shall make all efforts to ensure that extraneous and potentially biasing information is removed before dissemination to the assigned forensic unit. Unless strictly necessary for carrying out the testing, this includes information that specifically identifies the crime or charge being investigated, the victim, or any suspect currently under investigation." *See* Proposed Amendment to D.C. Code § 5-1501.06(b-1). We agree that it is important that the Laboratory consider potentially biasing information, and develop procedures to account for that. This proposed language, however, would remove the Laboratory's ability to access information that could more efficiently guide the testing process and ensure quality control within the Laboratory. This may include information both related to the crime or charge being investigated, and the name(s) or any victim(s), witness(es), or suspect(s).

[2] Notably, in its macro root cause analysis, "SNA identified ten root causes of the issues that led to the withdrawal of accreditation." The first root cause identified was: "There was an absence of clear, relevant, descriptive expectations regarding customer service. Executive Leadership did not appear to adequately prioritize customer service as an essential part of the DFS core mission." One of the other root causes identified was: "Executive Leadership may have misinterpreted the concept of laboratory independence resulting in not maintaining the required levels of accountability to their customers." *See* SNA International, *DC Department of Forensic Sciences Laboratory Assessment Report*, at ES 2 (Dec. 8. 2021).

Rather than legislating one discrete aspect of the Laboratory's testing process, we recommend that the Laboratory develop and implement its own procedures to shield examiners from potentially biasing information. The Laboratory should identify task-irrelevant information that could create bias and impact the interpretation of forensic evidence, and develop policies to address and document exposure to such information. This recommendation is consistent with the recommendation of the USAO-DC/OAG-DC audit team. It is crucial that the Laboratory have access to certain information about the crime or charge being investigated. Particularly in a large-scale investigation, crime scene technicians will collect numerous items of evidence. It is simply not possible to forensically test all items of evidence recovered, and may not be warranted. Context-specific information necessarily is required to make forensic examinations focused and efficient. Further, the identities of the victim(s), witness(es), or suspect(s), including their names, may be an important part of the processing of evidence, and removal of those names may lead to inefficiencies in evidence processing and chain-of-custody concerns.

The bill also proposes providing discovery directly to the defense, at the same time that the discovery is provided to the prosecution. *See* Proposed Amendment to D.C. Code § 5-1501.06(h)(2A). Consistent with our constitutional, ethical, and rule-based discovery requirements, we provide defense with fulsome discovery, and discovery from the Laboratory should be provided to the defense in the same manner that discovery is provided in other contexts. How and when the results of forensic analyses and underlying documentation are disclosed to the defense is a wholly separate issue from the structure, reliability, and accountability of the Laboratory—and should be stricken from this bill. Discovery is governed by Rule 16 of the Superior Court Rules of Criminal Procedure, as well as by other constitutional principles and orders of the court. This bill should not be the occasion to alter the discovery rules and practice.

Science Advisory and Review Board Membership

This bill proposes several changes to the Science Advisory Board in D.C. Code § 5-1501.11, including renaming it to the Science Advisory and Review Board. We support the bill's proposal to require Board members with experience in each of the forensic disciplines. At the same time, we have some recommendations to make this Board more effective.

First, the bill proposes that one member of the Board have "experience in criminal prosecution or defense." USAO-DC recommends that this one Board position be converted to two Board positions, such that one member of the Board must have "experience in criminal prosecution" and that one member of the Board must have "experience in criminal defense." Ensuring that the Board hears both perspectives will contribute to the fairness of the Board's decisions. Prosecutors typically work directly with both the Laboratory and outside laboratories, whereas defense counsel typically work directly with outside laboratories who they hire as independent experts. It would be valuable for the Board to have the expertise of both of these perspectives, both to benefit from their varying experience in the criminal justice system and their experience in working with different laboratories. In addition to these two Board members with legal experience, it would be prudent for the Board to have a permanent general counsel who can handle operational issues and resolve certain legal questions for the Board.

Second, the bill proposes that one member of the Board have "expertise in human factors or statistical analysis." Notably, the fields of "human factors" and "statistical analysis" are two different fields, and it is unlikely that one person would have valuable expertise in both fields. Rather, experts in the individual forensic disciplines can incorporate their knowledge of human factors as applied to their forensic disciplines. USAO-DC recommends that, rather than requiring one Board member with this broad background, the Board have authority to hire an outside expert when the Board would benefit from expertise in a targeted area to address a particular issue, concern, or question. Such expertise could include expertise in human factors or statistical analysis. By having authority to hire an independent expert, the Board can draw from the expertise of multiple individuals who are highly qualified, and allow the Board to receive the most targeted and appropriate guidance possible.[3]

Functions of the Science Advisory and Review Board

The bill mandates certain functions to the Science Advisory and Review Board. USAO-DC supports providing the Board with a structure that would help to ensure that future concerns raised by stakeholders can be addressed by the Board, but also wants to ensure that the Laboratory has sufficient authority to conduct its own routine oversight and quality assurance.

The bill requires the Board to, among other things: "Review and investigate all self-disclosures, complaints, or allegations of professional negligence, misconduct, misidentification, or other testing errors that occurred in the provision of forensic science services or public health laboratory services at the Laboratory." *See* Proposed Amendment to D.C. Code § 5-1501.12(1A). While we are not opposed to providing the Board a greater role in oversight and accountability of the Laboratory, we are concerned that this broad mandate will be unworkable in practice. These concerns are consistent with the concerns of the USAO-DC/OAG-DC audit team.

It is important that the Laboratory be given the first opportunity to investigate problems and implement corrective action for lower-level concerns, so that the Laboratory can target the root causes of those concerns closer in time to their occurrence, and with the specialized knowledge of the policies, procedures, employees, and daily workings of the Laboratory. Thus, the quality assurance team at the Laboratory should have authority to conduct initial quality assurance for most issues, and this quality assurance role should not be outsourced to the Board.[4] Further, the Board will not have the resources, manpower, or specialized knowledge to investigate every quality assurance issue. At the same time, it is important for the Board to have

[3] In addition, there are some remaining questions to resolve about mayoral appointees, including whether a Board member can be reappointed after completing a 3-year term, and whether and how a Board member could be removed from the Board, including what cause could justify removal. There are also some remaining questions to clarify about funding sources for the Board, including whether the Board or the Laboratory has control over the Board's funding requests, and whether the Board would be permitted to use funding for purposes such as hiring outside experts to advise the Board.

[4] It is axiomatic that, for the Laboratory to obtain and maintain accreditation, it will need to have a quality assurance manager and a quality assurance management program. *See Conformity assessment—Requirements for the operation of various types of bodies performing inspection*, International Organization of Standardization (ISO) /International Electrotechnical Commission (IEC) 17025:2017 and the American National Standards Institute (ANSI) American National Accreditation Board (ANAB), Standard AR3125, 2012. As we have maintained, it is crucial that the Laboratory views accreditation as a floor—not as a ceiling—to reliability.

a mechanism to address and investigate more serious concerns, and for the Board to be able to review the corrective actions taken by the Laboratory. The Board could also be a place for external stakeholders to raise their concerns when the Laboratory has failed to address those concerns. The Board's review of the Laboratory under proposed D.C. Code § 5-1501.12a should focus on whether the complaint or issue raised calls into question the integrity and reliability of the Laboratory's processes, procedures, or results. The Board's review should focus on allegations of serious misconduct or dishonesty, and provide a layer of accountability to the Laboratory where such concerns are present.[5]

* * *

In summary, it is crucial that the Laboratory undergo reforms so that we, as prosecutors and the community, can have confidence in the reliability of their forensic analyses. As scientists, the Laboratory should be charged with self-identification, self-disclosure, and accountability. As a forensics laboratory, the Laboratory should be both transparent to stakeholders and willing to hold itself accountable. We look forward to continuing to work with the Council, the Laboratory, and our criminal justice partners so that the District can be served by a forensics lab of the highest quality and integrity.

[5] USAO-DC also recommends several additional changes to the bill. First, the Board should be required to communicate its decision under proposed D.C. Code § 5-1501.12a(3) regarding certain allegations to the complainant, the Director of the Laboratory, and the Stakeholders Council. Second, the Board should have authority to take actions proactively where appropriate, for example, to address gaps in the quality of work or technical capabilities. Third, while it is appropriate for the Board to have oversight and provide accountability to the Laboratory, the Laboratory should have some ability to take its own action. For example, the Board should not have to approve all Laboratory protocols before implemented, as the Laboratory may need to make some decisions and implement protocols relatively quickly. As a further example, the Board should not be required to make recommendations on competency and proficiency "biannually," but should rather have the authority to make these recommendations "as needed." Fourth, following any appropriate redactions, minutes prepared by the Board pursuant to D.C. Code § 5-1501.11(g) should be made available to the public, including to members of the Stakeholder Council. Fifth, we recommend adding a new subsection to D.C. Code § 5-1501.04 to clarify that the Director of the Laboratory "be well-versed in all of the quality management knowledge requirements, to include but not limited to (a) Federal Bureau of Investigation's Quality Assurance Standards, (b) ANAB accreditation standards, and (c) International Organization for Standardization (ISO) 17025." Sixth, we recommend a technical update throughout the statute, replacing the words "computer forensics" with "digital evidence." Seventh, we recommend that the statute clarify that even where the Laboratory has authority to perform a designated act, other agencies are not precluded from performing those acts when appropriate. Finally, we urge the Council to consider including dates of completion and attach them to various benchmarks so that implementation of this legislation moves forward with deliberate speed.

Good morning. My name is James Carroll. I am accompanied by my colleagues, Todd Weller and Bruce Budowle.

The three of us were the auditors asked by the United States Attorney's Office and the DC Office of the Attorney General in early 2020 to review the firearms examination work by DFS in the McLeod case. Through our audit of the McLeod case, a review of additional documentation, and interviews with former employees of DFS, we have gained valuable insight into what went wrong within DFS and, combined with our collective 86 years of experience, are in a unique position to offer guidance to the council.

The withdrawal of accreditation from DFS is unprecedented. We applaud and support the council for taking steps to address the situation. It is clear that the council's objective is to set DFS on a proper path to conduct objective analyses and reach scientifically sound conclusions in support of the criminal justice system in the District of Columbia, and we fully support that objective. Thus, we appear today to provide our feedback on the recently proposed legislation and how it may affect laboratory operations. We have selected what we believe are four of the most significant areas of the legislation in which we have recommendations to discuss today.

Science Advisory and Review Board

The proposed legislation will expand the role of the previous Science Advisory Board into a Science Advisory and Review Board. Under a properly operating laboratory, we believe the best use of this Board is in an oversight capacity. The proposed legislation, however, charges the board with the responsibility to "Review and investigate all self-disclosures, complaints, or allegations of professional negligence, misconduct, misidentification, or other testing errors", to include prescribing corrective actions to the laboratory. This responsibility is simply too much to require of a part-time board, and likely will dilute the board's effectiveness. More importantly, proper investigation of testing errors requires insight into specific laboratory operations, environmental conditions, personnel, and technical procedures. The responsibility for investigating complaints and errors and determining corrective actions is more appropriately placed on a robust, full-time quality assurance unit within the laboratory. Members of the board would not be in a position to have intimate familiarity with the detailed operations of the laboratory. Instead, the board should take on an oversight role, ensuring that the quality assurance unit's investigations are thorough and the corrective actions are appropriate.

To be effective, the Board must be independent of the laboratory and the membership should not include employees of the laboratory. The composition of the board should include subject matter experts from a variety of forensic disciplines. These provisions are

already in the proposed legislation. Additionally, the results of investigations of complaints and testing errors, along with corrective actions taken, should be provided to the board so that the board can ensure thoroughness, watch for trends, and raise their own concerns. We also believe that the board should be a body to which stakeholders can turn if they feel their concern has not been properly addressed by the laboratory or if they feel their concern is so significant that an external investigation is warranted.

In order for board members to possess the required expertise, they will likely have their own full-time careers. Thus, their time on the board must be focused on the high-level task of providing oversight based on their collective knowledge and experience. The board will need its own general counsel and likely an administrative staff. Board members should also be indemnified from legal claims arising out of the performance of their duties. Knowing that the workload of board membership is manageable and focused, as well as supported by a staff, will make board membership more attractive to highly qualified individuals.

Laboratory Structure

The requirements for the director position, as defined in the proposed legislation, permit a degree in science, law, or business. Our recommendation is for a scientist to head the laboratory, assisted by a chief of staff with extensive management experience within DC government. However, if the council decides differently, then we recommend making it clear in the legislation that the Chief Forensic Science Officer and the head of the public health laboratory shall have final authority over technical matters in their respective laboratories.

Public Information about the Quality Assurance System

The proposed legislation has requirements for a variety of information to be made publicly available via the laboratory's website. Amongst that information is quality assurance records, to include corrective actions. We agree with the council that transparency is essential to gaining the trust of stakeholders and the public at large. However, measures taken must be balanced with creating an environment in which staff are comfortable and willing to self-report any errors or mistakes that come to their attention - a fundamental principle of an effective quality system. In our collective experience, self-reporting by staff is the most common manner in which issues come to light and, because of the timeliness in reporting, the laboratory is able to take immediate steps to rectify the problem and prevent recurrence. In order to create an environment in which staff are comfortable with self-reporting, it is essential that certain key information, namely the identities of involved parties, be redacted from the quality assurance records that are made publicly available.

We are not suggesting that the identities of involved parties not be recorded, as this information is essential for a quality system and for disclosure during the judicial process, but we strongly recommend that the legislation be modified to clearly require that identifying information be redacted from the publicly released records.

Bias

The proposed legislation contains a clause requiring the laboratory to "make all efforts to ensure that extraneous and potentially biasing information is removed before dissemination to the assigned forensic unit." We believe that the legislation is too broad. Certainly, the laboratory needs to be keenly aware of, and control for, potentially biasing task-irrelevant information. However, certain information is necessary for effective and efficient laboratory operations, and the nature of this information varies amongst the different types of analysis performed and the case circumstances. Rather than legislating one discrete aspect of the Laboratory's testing process, we recommend that the Laboratory develop and implement its own procedures to shield examiners from potentially biasing information. The Laboratory should identify task-irrelevant information that could create bias and impact the interpretation of forensic evidence, and develop policies to address and document exposure to such information.

Closing

In the end, legislation can only do so much. It is essential that the right people be installed in the key leadership positions within the laboratory. A poor laboratory structure with solid people can be successful, and an excellent laboratory structure with the wrong people can fail. The right people will earn the trust of all stakeholders through their leadership and their transparency.

We have additional recommendations that may be beyond the scope of this hearing, but we are happy to share them now or at some future time at the request of the council. With that, we would be glad to take any questions.